PENNSYLVANIA STATE COLLEGE
SCHOOL OF FORESTRY
STATE COLLEGE, PA.

NORTH AMERICAN REVIEW.

No. DVII.

FEBRUARY, 1899.

IMPERIAL RESPONSIBILITIES A NATIONAL GAIN.

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In the lives of men and of nations there are marked turning points. A momentous decision has to be taken, or a chance presents itself which, once lost, cannot be recalled. The past history of the American people shows two such great national crises towering above all minor issues. In both, the solution was attained by war involving immense sacrifices; but looking back through the years, with vision unclouded by the stormy passions of the moment, we recognize that the decision in each case was fraught with permanent benefit to the progress of the world. When, after the close of the Seven Years' War, the relations between Great Britain and her North American colonies became strained, and successive measures of oppression led to the Boston outbreak of 1773 and to the active hostilities of 1775, the choice of two courses lay with the leaders of the revolt. They might have determined to continue to oppose the specific acts of the mother country, which constituted their real grievance, in the hope that a change of policy would come to their relief. Or they could cut the Gordian knot by a declaration of independence, and assume the tremendous responsibilities involved in the foundation of a new State. We cannot now know what would have been the result of the adoption of the first course. There was

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in England a great body of opinion—too generally forgotten in America to-day—which ranged itself from the first on the side of the colonies. Speaking in the House of Commons in 1766, Pitt declared that "this kingdom has no right to lay a tax upon the colonies. . . . Taxation is no part of the governing or legislative power. The distinction between legislation and taxation is essential to liberty." And in a little known private letter written after the surrender at Saratoga,* he thus characterized the situation:

"How decisive and how interesting are the ways of Providence! The sentiment and the conduct of the American Colonies, full of nobleness and humanity! On the side of the Royalists, native English spirit, not to be extinguished—thank God—by *enslaving* principles and *peremptory nonsensical orders!* When will national blindness fall from our eyes, and the *gutta serena* be taken off that sight which should behold all with an equal view? . . . I rejoice that the Americans have behaved *in victory* like men who were actuated *by principle:* not by motives of a less elevated nature. . . . I would as soon *subscribe to Transubstantiation as to sovereignty (by right) in the Colonies.*"

Contemporary expressions of this nature could be indefinitely multiplied. The thirteen revolting colonies were distinctively British in sentiment and in nationality, and it was inevitable that they should receive support from their late fellow citizens, who, in parallel circumstances, would have adopted the same line of action. On the other hand, the political conditions of the mother country were not at the time favorable to an entirely new departure in colonial policy, and hostilities once commenced tended to strengthen the forces of reaction.

The first great turning point in American history was determined by a purely British people, few in number but instinct with the spirit of human liberty. Washington and John Adams followed directly in the footsteps of Cromwell and Hampden. The Revolution of 1776 was the lineal descendant and even the logical consequence of that which began in 1642. To America, the 4th of July was the dawn of a new nation; to Great Britain it was the real starting point of a new era which has witnessed the firm establishment, on the basis of equal rights, of her present colonial empire. We cannot tell whether, if in 1776 the "United Colonies" had decided to temporize instead of declaring that they "are, and of right ought to be, free and independent States," the mother country would have fully learned the great lesson

* To the Earl of Shelburne, Dec. 15, 1777.

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then roughly administered. But we now see clearly that this decision led to the uprising of a national spirit to which is directly due the marvellous development of the United States, and that Great Britain, shorn of her oldest and greatest dependencies, gave proof of energies stimulated, and of vigor enhanced.

In 1861, the American people, grown to thirty millions, no longer distinctly British, were brought face to face with a second great crisis. The subordinate issues were curiously complex; but one question of vital import to the future of the nation dominated and included all others. Should the Union be maintained at any sacrifice? The immense majority of Americans answered in the affirmative, and many thousands laid down their lives for a cause which strongly appealed to all that was best in the opinion of the old mother country. "We see," said John Bright, in the House of Commons,* "that the government of the United States has for two years past been contending for its life, and we know that it is contending necessarily for human freedom. That government affords the remarkable example—offered for the first time in the history of the world—of a great government coming forward as the organized defender of law, freedom and equality." The democracy of Great Britain was throughout staunch to the cause of the Union. "I know," said the same statesman,† "that there are ministers of state who do not wish that this insurrection should break up the American nation; that there are members of our aristocracy who are not afraid of the shadow of the Republic; that there are rich men, many, who are not depraved by their riches; that there are public writers of conscience and honor who will not barter human rights for the patronage of the great." These words were true, and the attitude of the Lancashire operatives, reduced to the verge of starvation because the mass of the American people had decided to uphold the Union at all cost, is a far better index of real British feeling than the diatribes of certain newspapers. Most unfortunately the utterances of a noisy minority in this country alone reached the United States. The broader and deeper currents of thought were then and have been since all unrecognized.

In 1861, as in 1776, the mass of the American people ac-

* June 30, 1863.
† Birmingham, Dec. 18, 1862.

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cepted a tremendous responsibility. The national will, personified in Lincoln as in Washington, rose superior to the crisis. The Union was saved, and the gain was world-wide. At both of these great turning points in history, self-reliance and firm faith in the destiny of America determined the issues, and the parallel is manifest. The qualities which called a new State into existence in 1776 and saved that State from disruption in 1861-5 are the heritage of the Anglo-Saxon race, which American citizenship has always been able to impart to the mixed nationalities attracted into its fold.

In the year now past, another vital question of supreme importance for good or evil presented itself for decision, and again, as I firmly believe, the true path has been chosen. Writing nearly five years ago, I ventured to state that "a policy of abstention from the responsibilities of a great nation has become impossible to the American people," * and last year I pointed out that "it is a loss to the world that the United States, with their growing trade interests, second only to our own, have so far failed to accept the position of a great power with the corresponding responsibilities." †

When the long inevitable war with Spain broke out, one certain result was clear to every student of history. Whatever were the illusions cherished in April last, the moment was evidently at hand when the American people would be brought face to face with the alternative of accepting or repudiating direct responsibility for the restoration and maintenance of law and order in Cuba and the Philippine Islands. The war could end only in one way, and when once the feeble rule of Spain was shattered, anarchy would necessarily supervene in her distant possessions if the strong hand of a great power were not forthcoming to protect the hapless populations. The case of the British intervention in Egypt in 1882 offered a close parallel. The occupation was to be temporary; approximate dates of withdrawal were officially announced; but duties toward a semi-civilized people, whether rightly or wrongly assumed by a great nation, cannot be abandoned without a loss of honor.‡ An action such as

* NORTH AMERICAN REVIEW, March, 1894.
† *Nineteenth Century*, February, 1898.
‡ Cyprus, acquired in 1878, is another case in point. The island possesses no naval or military importance and its occupation is of no advantage to Great Britain. If, however, it were abandoned, great injustice would be inflicted on the numerous persons, the value of whose property and interests has been created by British rule.

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those in Manila Bay and at Tel-el-Kebir creates a new situation. In the one case, the symbol of Spanish power in the Philippines and the link connecting them with the governing State were destroyed; in the other, the army, the only organized force in Egypt, and with it the machinery of government, were broken up. In either case, direct responsibility devolved upon the victor.

As soon, therefore, as the recent hostilities came to an end, the many friends of the United States in England carefully watched the currents of popular feeling. Would the new duties be frankly accepted? Would the manifest imperial destiny of the American people be now realized? Or would the dead letter of the farewell message of Washington so dominate opinion as to prevent, or at least postpone, a new departure? These were the questions which engrossed all thoughtful minds on this side of the Atlantic.

As to Cuba, there could be no doubt. The war was undertaken in order to put an end to a government which had failed in its most elementary duties, and had directly caused a wholesale destruction of life and the devastation of a rich island within a few hours' steam of the shores of the Republic. Whatever steps were necessary to establish order, to secure human liberty and to promote prosperity, would certainly be taken by the United States. An Armenia or a Crete lying a hundred miles from the Land's End would have been freed many years ago. Moreover, the idea of exercising authority over Cuba had grown familiar. By geographical position it was marked out as the certain ultimate inheritance of the United States; its people and natural features were widely known; a protectorate or annexation would not involve any entanglement of American "peace and prosperity in the toils of European ambition, rivalry, humor or caprice;" the fleet, almost in home waters, could control its communications. In the case of the Sandwich Islands, also, the conditions were comparatively simple. The group, though isolated, is too far removed from the centers of foreign naval forces to create great demands for its defence; the population was unlikely to give trouble, and already American influence was paramount at Hawaii. Captain Mahan seems to have believed that Great Britain had persistently endeavored to thwart American aspirations in this direction; but, as I pointed out in February

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last,* "if these islands are now annexed, not the smallest protest, opposition or resentment will be forthcoming in this country," and he would probably admit the accuracy of my forecast. Nevertheless, the annexation found many opponents in the United States, whose views suggested misgivings as to the solution of the infinitely more important question of the future of the Philippine Islands. This was the real turning point, and some hesitation before taking a step fraught with momentous consequences was natural. The thirty millions of 1861 had become seventy. The admixture of foreign races had further encroached upon the population of British descent; but, as Dr. Lyman Abbott has pointed out,† whatever the composition of the United States, their ethical and political system, their sense of liberty, and their restless energy, are "peculiarly Anglo-Saxon." The impulse toward expansion, the instinct of empire and the unwillingness to shrink from a great responsibility, were ingrained in the genius of the nation.

> "If we shall stand still
> In fear our motives will be mock'd and carp'd at,
> We should take root here where we sit, or sit
> State statues only."

So wrote Shakespeare; so—unconsciously, perhaps—the American people reasoned when the third great turning point in their history presented itself. The same decision would infallibly have been arrived at by Great Britain in similar circumstances, and to us the knowledge that the United States have freely elected to abandon the policy of isolation, to follow in the footsteps of the "ancient mother" and to assume their rightful place among the nations of the world, is a source of unmixed satisfaction.

In 1762, American troops were present with the force under Sir George Pocock and Lord Albemarle which captured Havana.‡ In the same year, Manila fell to an expeditionary force under Admiral Cornish and General Draper, and its surrender "comprehended that not only of the whole country, of which it is the capital, but of all those numerous and valuable islands which are its dependencies." § The town of Manila was, according to the custom of the times, ransomed for a sum of one million sterling,

* *Nineteenth Century.*
† NORTH AMERICAN REVIEW, May, 1898.
‡ American troops were also present with the force under Generals Wentworth and Guise, which landed in Guantanamo Bay in 1741.
§ *Annual Register*, 1763.

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of which the greater part was never paid.* Under the Treaty of Paris in 1763, with the total disregard of relative values which British statesmen have frequently displayed, Havana and the Philippine Islands were returned to Spain in exchange for Florida and the right of log cutting in Honduras. That, after a lapse of one hundred and thirty-five years, the Pearl of the Antilles and the rich islands of the China Sea should have again, and this time permanently, fallen under the sway of the English-speaking people, is a curiously interesting historical development. The United States have stepped into the place which might have been ours, and have fulfilled the destiny of the Anglo-Saxon race.

Whether the consequences of the supremely important new departure are realized seems doubtful. The United States have brought under their rule vast tracts of territory. The process of absorption has been carried on without effort and without apparent effect upon the machinery of government. It may naturally be thought that the placing of the Philippine Islands on the footing of a "territory" is a measure akin to that adopted in California in 1846—more difficult, perhaps, by reason of the distance and of the large native population, but differing in degree and not in principle. On the other hand, while American writers have dwelt upon the immensity of the task undertaken and laid stress upon the want of experience and of previous preparation of the United States for the discharge of their new obligations, few have drawn attention to the moral gain thus arising.

Senator John T. Morgan admits that "the situation imposes upon the American people a difficult and responsible task, in giving a proper direction to the future of those insular people that are now left in a chaotic condition." † He believes, however, that "annexation will not be a necessary or proper result" of the naval and military action taken at Manila, and he alludes to the "temporary necessity of preserving the peace in these islands until the rightful government of their people has been established on a safe foundation." We have heard of this "temporary necessity" before in relation to India, to Egypt and to Tunis; but events have shown that a great and progressive power, in order to give "a proper direction to the future" of semi-

* Manila had previously been taken by a British force in 1757.
† NORTH AMERICAN REVIEW, June, 1898.

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civilized or uncivilized peoples, and to establish over them "a rightful government" on a "safe foundation," incurs responsibilities which deepen and extend with the years. The United States cannot be content with occupying a fringe of coast line, and leaving great areas unexplored and undeveloped, as was Spain in the Philippines, as is Holland in Sumatra. Barbarism cannot be tolerated by a great power controlling territory lying close to one of the great highways of the world. The period at which the mixed population of more than seven millions will attain to a capacity for self-government lies far off in the dim future. Senator Morgan's idea that the islands, after a brief period of tuition, will be able to manage for themselves, directly contradicts the teaching of history.

To Mr. Andrew Carnegie the question presents itself in a purely commercial aspect. The islands "will yield us nothing and probably be a source of annual expense." * They will necessitate the maintenance of an "enormous army and navy." They may involve foreign complications, and so disturb the serene horizon of the United States. "The sagacious policy of keeping possessions and power concentrated" ought to be resolutely upheld, which would logically entail the abandonment of foreign commerce and rigid restrictions upon the employment of American capital abroad. Broadly speaking, Mr. Carnegie appears to dread expansion on the ground that it might, in some way not clearly defined, interfere with the material prosperity, the luxury and the security of the people of the United States.

In these two articles, written from a widely different standpoint, and in many others, I do not trace the faint glimmer of the great truth that the responsibilities of empire may be a moral gain to the nation which accepts them from lofty motives. Both Senator Morgan and Mr. Carnegie, however, unconsciously illustrate the urgent need of a new political departure. The former rejects the idea of any permanent occupation of the Philippines "because the United States are, in every sense, American," and these islands "are not within the sphere of American political influence, but are Asiatic, and should remain Asiatic." Domesticity is one of the virtues; but the man whose whole interests and responsibilities are limited to his home circle, lives at best a maimed and stunted life.

* NORTH AMERICAN REVIEW August, 1898.

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Self-centered nations are incomplete organisms which can never attain full dignity and vigor. If the Senators of Rome in 260, B. C., after the subjugation of Italy, had set their faces against expansion, proclaiming that foreign territories were "not within the sphere of Roman political influence," they would have indefinitely retarded the progress of the world.

On the other hand, Mr. Carnegie would abandon the Philippines to chaos or to a scramble among powers to whom liberty, as we understand the word, is yet unknown, because "Americans cannot be grown there." In his view,* "the most grievous burden which Great Britain has upon her shoulders is that of India, for there it is impossible for our race to grow."

It is true that our race cannot colonize India, cannot become hereditary magnates, territorial or industrial, in any part of British Asia; but the task of governing India, heavy as it is, confers upon us a moral advantage which defies all estimate. The greatest gains of nations and of individuals cannot be presented in the form of a balance sheet. European peoples vaguely regard India as a perennial mine of material wealth, upon which Great Britain makes huge annual drafts. This is an absolute illusion; but to India we owe in great measure the training of our best manhood. India makes men, though it does not "grow" them, and the influence, example and education of the men whom India makes reacts powerfully upon the whole social and political structure of the nation.

A young civilian goes to India to find himself at once in a position of great individual responsibility, to represent justice and right among a horde of Asiatics in some isolated country station, to rise rapidly to the rule of many millions. A young officer joins a regiment from the military college and may shortly find himself the leader of native troops in a trying situation; or —such cases occur—he may be placed in charge of a plague district in a great town, with duties calling for high administrative qualities combined with the utmost tact. In this way men are made, and when the continuous interchanges between England and India and the number of relatives and friends who are carefully following each Indian career—even those that are humble—are remembered, some idea of what our great dependency gives back to us may be attained. In a lesser degree, Egypt, South,

* Expressed also in THE NORTH AMERICAN REVIEW for June, 1893.

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East and West Africa and other portions of the empire are contributing continuously to the national vigor; while, in the great self-governing colonies, strong and self-reliant peoples are growing up under the ægis of the British flag, which already teach lessons to the mother State. Not long ago I read a short biography of Major "Roddy" Owen, written by his sister, which throws a strong light upon the careers which attract the young Briton of to-day. Owen was the finest steeplechase rider in the army, and one of its most popular officers. Before him lay a life replete with pleasures and comfort. In 1892, he seems to have become dissatisfied alike with victories on the turf and with social success, and to have craved to "do something for the empire." On the morrow of winning the Grand National, he left England to receive three wounds in leading Hausas across a West African river. Thence he went to Uganda and alone, under circumstances of the greatest difficulty and suffering, he carried the flag to Wadelai. In 1895, he took part in the Chitral expedition, and helped to lead two charges of native cavalry, subsequently undertaking an adventurous solitary journey to the Pamirs. In the following year, he joined the Nile expedition and died of cholera alone among the Alighat Arabs, whose affection he had quickly gained. Owen's career is typical of many, and so long as examples of this nature continue to inspire our young men by the thousand, the nation will gain more than words can express. I do not wish to lay stress on the military advantage arising from the fact that a large proportion of our officers and men have experience of campaigning in wild countries. This advantage will show itself in any great emergency. I prefer to dwell upon the moral gain, the frequent concentration of the public mind upon other than domestic affairs, the antidote to the patent evils arising from mere material prosperity, and the high ideal of manhood which is maintained directly and indirectly by imperial responsibilities. The empire, with all its risks, anxieties and burdens, is now more than ever producing men.

Looking back upon the past year, it is impossible not to recognize the immense influence of the late war upon the American people. Mr. Carnegie tells us that "the United States, thus far in their history, have no page reciting self-sacrifice made for others; all their gains have been for themselves." This statement, if true, would supply a powerful argument in favor of the

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policy which he condemns. Isolation from the affairs of the world and abstention from the responsibilities of a great power are necessarily incompatible with "self-sacrifice made for others."

In redeeming the world from barbarism, many nations have taken part, with varying success. Russia in Central Asia and France in Algeria, Tunis and West Africa, have accomplished good work which, by reason of unfortunate international jars, has not been adequately appreciated in this country. Italy, after sad blunders, is now ameliorating the conditions of human life in her Red Sea province. Germany, in East and West Africa, and now in China, is removing abuses. In so far as the work carried out by these nations has been beneficial to native races, it has reacted upon themselves, for "mercy . . . is twice blessed."

Meanwhile, the United States, absorbed in the development of their vast territories, in the race for wealth, and in internal politics, remained self-centered. The late war swiftly infused new aspirations into the national life, and upraised nobler ideals. Sympathy for the perishing *reconcentrados*, warm appreciation of heroism by sea and land, kindly thoughts for the vanquished, indignation aroused by the easily preventable sufferings of the brave troops who had worthily upheld the national honor—such were the impulses which stirred the hearts of the American people. A wave of generous emotion passed over the land, and the mere politician was for the time submerged. The recent New York election is the significant proof of a new standard of merit and of the triumphant assertion of new and loftier claims upon the popular suffrage. Before the war Colonel Roosevelt's chances would have been *nil*. After the war, the gallant soldier and man of action could successfully hold his own against the wire-puller. In this there is a distinct moral gain. It is a healthy and a hopeful sign that the mind of the New York elector turned to the "stricken field" before Santiago rather than to narrow local considerations. Already, therefore, the effect of "looking outward" * is clearly visibly. And, as President McKinley has stated,† "military service under the common flag and for a righteous cause has strengthened the national spirit, and served to cement more closely than ever the fraternal bonds between every section of the country."

* I borrow the words of Captain Mahan.
† Annual message, Dec. 5, 1898.

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Henceforth the United States will occupy a new position among the nations of the world. They have, in effect, accepted responsibility for the righteous government of some ten millions of alien races. Their task, in the Philippines especially, will be difficult; but if it is approached with high aims and without seeking direct advantage, the difficulties will be successfully surmounted. The secret of the government of Eastern peoples mainly consists in the art of selecting agents of the right stamp, and the United States possesses men in abundance who are capable of regenerating the lost colonies of Spain. It is only necessary to make the selection without fear or favor, and with a single eye to the general good. The marvellous prosperity of the protected States of the Malay Peninsula, inaugurated by Sir Andrew Clarke and carried out by a few British representatives, acting through native rulers, and respecting native prejudices, shows what can be accomplished in conditions closely resembling that of the Philippine Islands. What we have done, Americans imbued with the same love of liberty and reverence for justice can undertake without doubts or misgivings, and the incalculable moral gain which imperial responsibilities have conferred upon us will be their reward. Reflex action upon the United States will be one of the most important results of the new departure.

A great nation once committed to expansion can neither draw back nor set a limit to its inherent energies. For the moment the future of Cuba, Puerto Rico, the Philippines and the Sandwich Islands is the subject of speculation; but President McKinley touches upon two other questions, which will shortly assume great importance. "The construction" of the Nicaragua Canal, he states, "is now more than ever indispensable, and our policy more imperatively than ever calls for its control by this government." The interests of the world, no less than those of the United States, demand that this linking of the oceans shall be realized. Those interests also require that the waterway should be absolutely controlled by the United States. We do not want to repeat in the Western Hemisphere the political complications in which the Suez Canal is involved. But the policy indicated by the President will infallibly entail new relations and new responsibilities in regard to the Central American republics. Again, in becoming an Asiatic power, the United States will stand face to face with the great problem of China. "If no discriminating

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treatment of American citizens and their trade be found to exist, or be hereafter developed," states the President, "the desire of this government would appear to be realized." This is precisely the British view, and at last the English-speaking peoples stand side by side in upholding a principle of the highest international importance.

With the new year a fresh chapter in the history of the United States opens. The fair white pages await the impress of statesmanship, and I firmly believe that they are destined to bear the record of honorable work in the cause of liberty, justice and humanity. One European nation alone has cordially welcomed the new departure of America, and it is surely a happy augury that the English-speaking peoples have at this precise juncture recognized their need of each other. This suffices, and of the artificial and temporary arrangements miscalled "alliances," which provide occupation for European chancelleries, there is no necessity. Should a common emergency arise, we shall be able to undertake combined action with a full mutual understanding hitherto attained by no alliance. In war, the strength of the United States and Great Britain would be represented by the sum of their resources, and no correcting factor is required, because the genius of the two nations has a common origin. In peace, as Dr. Lyman Abbott has pointed out, if they "work together for the world's civilization, no reactionary forces can withstand their combined effort."

G. S. CLARKE.

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EXPERIMENTS WITH HIGH EXPLOSIVES IN LARGE GUNS.

BY HIRAM STEVENS MAXIM.

FOR many hundreds of years common black powder was the only explosive used in warfare, and it was not until after Nobel invented a process for the manufacture of nitro-glycerine, that engineers began to speculate upon the possibilities of using something stronger than common black powder for charging shells thrown from large guns.

The properties of nitro-glycerine were for many years but imperfectly understood. It was said of it that if you wished it to explode it was impossible to make it do so; if you handled it with great care and did not wish it to explode it was almost sure to go off; sometimes it could be set on fire, and would burn very much like a slow fuse, while again the least jar would cause the most frightful detonation. Evidently such an agent was not suitable for use in firearms, and it was only after Nobel's discovery that nitro-glycerine could be gelatinized with collodion cotton (di-nitro-cellulose) that engineers began to experiment with a view of using this high explosive in projectiles.

The naval and military engineers at Shoeburyness were among the first to conduct experiments, and it was found that when sufficient collodion cotton was employed to make the compound about the consistency of soft rubber, it could be fired with a comparative degree of safety from ordinary guns, providing, of course, that the powder charge used as a propellant was not too violent. Large numbers of rounds were fired under apparently identical conditions, with the result that perhaps 99 per cent. passed harmlessly out of the gun, while about 1 per cent. exploded in the bore of the gun, completely demolishing it.

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Simultaneously with these experiments, Sir Frederick Abel was experimenting with compressed wet gun cotton, and he found that this explosive (tri-nitro-cellulose) when ground into a pulp, similar to paper pulp, and compressed while wet into slabs or blocks, could not be detonated by any ordinary means; that it could even be thrown into a white hot furnace with safety; but that it would detonate exactly like a fulminating cap, providing that a very large detonating charge of fulminate of mercury was employed, and this led to its universal adoption, not for use in large guns, but as the explosive charge in submarine locomotive torpedoes. However, it never has been used to charge projectiles fired from guns, except experimentally and on a small scale.

In 1884 I was consulted by a high Government official who told me that he had a quantity of German brown cocoa powder; he said that this powder produced remarkable velocities with phenomenally low pressures; it was a slow burning powder *par excellence.* He said that it was the easiest thing in the world to analyze it; he had given it to the leading chemists and scientific men to analyze, and they all agreed exactly as to the amount of carbon, sulphur and nitrate of potash present, but he added "when we make a powder here with the greatest care, containing the exact proportions that we find in this German powder, the results are totally different. Instead of high velocities and low pressures we get high pressures and low velocities, and still there is chemically no difference. There is nothing new in the chemicals employed, still we are asked to pay a very large sum of money for the secret. I have thought that perhaps you could put us on the right track and save the money. Can you tell us how the powder is made?" I replied: "You have already told me yourself, but I will come to-morrow and tell it back to you again."

When he assured me that the powder was chemically the same as the powder made by the Government, I knew that the difference must be some physical condition due to the mechanical mixing of the material, and it occurred to me that in all probability the sulphur and charcoal were very finely ground and intimately mixed, and that the oxygen bearing salt (nitrate of potash) must have an appreciable size.

In nitro-glycerine the nitrogen groups carrying the oxygen and the combustible material are almost in chemical combination; that is, the ultimate atoms are almost in actual contact; the dis-

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tance between the centre of the store of oxygen and the centre of the material to be consumed is infinitesimally small, perhaps not more than one thousand millionth part of an inch; but in ordinary gunpowder, although ground extremely fine, the distance between any particular particle carrying oxygen and the material to be consumed is enormously great as compared with the distance in nitro-glycerine. Now, if we wish to make the powder still slower burning, we shall only have to increase this distance. So thoroughly was I convinced that this must be true that I at once went to an instrument maker and bought a micrometer to use with my microscope. I took two prisms of powder, one made by the Government and the other German prismatic; I polished the surfaces and examined them. The Government powder appeared perfectly homogeneous, the particles were so finely ground, so intimately combined and so firmly pressed together that it appeared to be all one body. I then tried the German prismatic, and it appeared under the microscope, exactly like what is known as brawn or hogshead cheese; the sulphur and carbon were finely ground, but the nitrate of potash had a granular appearance, the largest grains being 1-200th part of an inch in diameter.

The next day I took my instrument and the powder and showed it to the official. He congratulated me very highly and said I had done them a good service. However, about a year later, he informed me that the eminent scientist employed in the first instance, never would forgive me for what I had done with my microscope. The discovery, however, led me to further investigation. I went to a powder mill, and made a batch of powder; I carefully weighed the charcoal and carbon, and ground them together under an edge mill, quite as fine as they would have been ground in the ordinary way. I then added the proper amount of nitrate of potash in a granular form, thoroughly mixed it, and when it had been under the action of the edge mill for about five minutes, I removed a few pounds. This I repeated at short intervals for about four hours. Upon trying these specimens, it was shown that powder could be made slow burning to any required degree; that there was a constant change in the powder in the mill for about one hour, after which time very little change took place, that which was ground four hours being only slightly more violent in its action than that which was ground for two hours; while there was a great difference between that which had

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been in five minutes and that which had been in twenty minutes. Some of these powders were afterward granulated, others compressed into cubes and tried before Government officials, when my theory in regard to slow burning powder was fully borne out.

Having found that powder could be made slow burning, I next arranged it in such a manner as to be progressive—that is, I pressed the powder into blocks and cubes, and loaded cartridges in such a manner that the first powder to be burned would be slow burning, and the last to be burned quick burning, so that as the projectile moved forward in the barrel, the powder would burn faster and faster, thus maintaining the pressure and imparting to the projectile a high velocity without a high initial pressure. It was also found that the violence of the shock was much lessened by the use of progressive powder.

I then determined to construct a gun for throwing high explosives, such as nitro-gelatine and compressed gun cotton, from a powder gun. At that time, considerable discussion was taking place in regard to the utility of submarine torpedoes. Mr. Bryce-Douglas, who was then Chief Engineer of the Fairfield Shipbuilding Works, Glasgow, expressed it as his opinion that it would be almost impossible when ships were in motion to discharge a torpedo in such a manner as to hit another vessel except at very short ranges. He said that the eddying and whirling of the water would be such as to make torpedoes almost as dangerous to the ship throwing them as to the ship aimed at. At that time torpedoes were projected into the water by compressed air, or by a small powder charge, throwing them perhaps forty feet from the ship. Why not make this tube larger and throw the torpedo through the air to the ship instead of throwing it in the water? This would make the torpedo much cheaper, there would be greater certainty of hitting and the effective range would be greatly increased. Acting upon these suggestions I constructed a torpedo gun, using progressive powder arranged in such a manner as to start the torpedo on its flight at a relatively gentle pressure and increasing the pressure on the projectile as the torpedo moved forward in the bore. I also provided my torpedo with a peculiar fuse, the striker being a long distance from the fulminating cap, so as to give a delayed action, permitting the projectile to enter the side of a ship, or to sink a certain distance in the water before exploding. It was found in these experiments that almost any

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velocity could be imparted to the projectile with very little shock, the powder being completely under control.

I then found that there was great prejudice against the use of high explosives on board ship. I also found that the prejudice was so strong against throwing high explosives by the use of any sort of gunpowder as to make it absolutely impossible to get the apparatus tried anywhere. In the meantime, I had found the cause of the supposed mysterious explosion which occurred when nitro-gelatine was used at Shoeburyness. If a projectile was loaded in such a manner that a considerable quantity of air was imprisoned between the base of the projectile and the nitro-gelatine, it would be very violently compressed when the shot was discharged, and the heat developed would sometimes cause an explosion. I found that if the air was completely removed, so that not even a bubble was present, this source of danger was removed, and I made an apparatus for removing air bubbles from nitro-gelatine, and loading the mass in the projectile in such a manner that no air was present. I knew at that time that no explosives would detonate or explode in a vacuum.

Another source of danger, especially when compressed gun cotton is employed in rifled cannon, arises from the quick and violent twist given to the projectile, which rotates the case or shell, without rotating the bursting charge. This I obviated by dividing the interior of the shell into numerous compartments. Still no one could be persuaded to use my torpedo gun.

In the meantime, the French had been experimenting with picric acid, under the name of milenite, with fairly good results.

The next step was the Zalinski gun. This had been made and tested in the United States, when it was found that large charges of high explosives could be thrown considerable distances from an air gun. One of these guns was brought to England and fired at Shoeburyness. It was said at the time that three shots fired with the gun firmly locked in a stationary position landed in the same hole in the mud. The accuracy was admitted to be remarkable, but the velocities were so low, the range so short, and the trajectory so high, that it was almost impossible to hit the target when the gun was fired from a ship. It was even said that if the gun were properly aimed from a ship and the trigger pulled, the barrel, on account of its great length, would move sufficiently after the trigger was pulled and before the shot left the

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gun, to throw the shot completely off the target. Still, it was believed that under certain conditions the gun might be useful for fortifications. In any compressed air gun of the Zalinski type, it will be evident that an increase in the atmospheric pressure is not attended by a corresponding increase in the velocity of the projectile, because the higher the pressure of the air the greater its weight and density, so that when the pressures are increased, we will say from 2,000 to 3,000 lbs. per square inch, the actual velocity of the projectile is only slightly increased. It occurred to me at that time that if the pressure could be increased without increasing the weight or density of the air a great improvement would result. I therefore constructed a gun in which I used only 1,000-lbs. pressure per square inch. The gun was arranged in such a manner that when the air passed from the reservoir into the chamber of the gun it took along with it a small quantity of gasoline, just enough to render the mixture explosive, the same as the mixture in a gas engine. The gun being loaded, in order to fire the trigger was pulled, which acted upon a large balance valve, which suddenly sprang open; the projectile was then driven forward in the bore with a pressure of only 1,000 lbs. per square inch. When the projectile had moved from 2 to 3 calibres, the charge of gasoline and air was ignited, and while the projectile was still moving forward, the fire ran back into the chamber, constantly raising the pressure, so that by the time the projectile had reached the muzzle of the gun the pressure had mounted from 1,000 to 6,000 lbs. per square inch, and the result was a comparatively high velocity with a short barrel. This gun was fired a great number of rounds in 1888, and found to be quite reliable. A peculiar feature was that the report of this gun was very loud and violent, showing that the final pressure was very high, while in the Zalinski gun the report is very feeble, showing that the final pressure is low. But this gun never went beyond the experimental stage. All the naval men with whom I came in contact were opposed to having any kind of high explosive on board ship, many of them even objecting to compressed gun cotton used in torpedoes, while not a few did not believe that torpedoes would be of much value in a sea fight.

In the meantime a long series of experiments had been made at Portsmouth on H. M. S. "Resistance." The name seemed to have been well chosen. This old ship was torpedoed time and

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again, patched up and made as good as new. The experiments demonstrated that the ordinary submarine torpedo was nothing like as destructive as one had been led to believe. Experiments were also made with lyddite (which is the English name for milenite) with projectiles loaded with various high explosives. Then black powder was tried, and I remember distinctly that it was said that, everything considered, old-fashioned black powder answered the purpose best; it appeared to be quite as destructive as any other agents employed, was more apt to set the ship on fire, and produced an immense amount of smoke, which was demoralizing to the men and enabled the gunners to see where their shots had struck better than any other form of powder.

The "Resistance" experiments were very discouraging to me at the time, and my aërial torpedo experiments were practically abandoned—especially so as I had learned from experiments made at Annapolis that compressed gun cotton, dynamite, nitro-gelatine and so forth, had little or no effect upon armor plates.

It was then that I commenced my experiments in smokeless powder. It was known that the French had a smokeless powder, and every one in England was anxious to find out what this powder was. I had witnessed the firing of many rounds from Maxim guns in France, and from the smell of the fumes while firing it occurred to me that the powder employed might be a gun cotton compound. It was gun cotton dissolved in a solvent, made into sheets, dried and granulated.

The first smokeless powder that I made in England was made in exactly the same manner as the French. I had obtained a quantity of true gun cotton, that is tri-nitro-cellulose (known sometimes as insoluble gun cotton because it cannot be dissolved in alcohol and ether like collodion cotton, di-nitro-cellulose). Some of this powder, when freshly made, produced fairly good results, quite as good as those produced by the French powder, but upon keeping it for a few months the grains lost their transparency, became quite opaque and fibrous, and it then burned with great violence. Investigation showed that about 1 to 2 per cent. of the solvent was still in the powder when the first tests were made, whereas the drying out of this last trace of solvent had completely changed the character of the powder. I then added to this powder about 2 per cent. of castor oil, with the result that the castor oil remained after the solvent had been completely removed,

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so that the powder would keep any length of time—indeed powder made at that time (1889) is quite good to-day.

But I wished to produce still higher results. I knew nothing of what other experimenters were doing, but it occurred to me that it would be very curious if two violent explosives like nitro-glycerine and gun cotton could have the same amplitude of molecular waves passing through them when the explosion took place. It also occurred to me that if the two substances were intimately combined, made into a liquid and mixed together and then dried, it might be found impossible for a molecular wave to pass through both of them. For instance, if we should take a plate of ice two inches thick and put it in a glass box four inches thick, the light would pass through both the ice and the two inches of air space, but if we ground the ice very fine, so that it filled the whole space, *i. e.*, the ice and air being thoroughly mixed together as in light snow, a wave of light would not pass through the two; in fact, the mixture would completely shut out the light, giving a black shadow. I believed that if the nitro-glycerine and the gun cotton were intimately combined an explosive wave would not pass through the mixture, and experiments revealed that I was quite correct. All mixtures of from 1 per cent. to 75 per cent. of nitro-glycerine were experimented with, the result being that from 10 to 15 per cent. was found to be the best, everything considered. If larger percentages of nitro-glycerine were employed, there was little liability of detonating when new, but it was found that the nitro-glycerine would gradually ooze out, or one might say evaporate out and condense in the cartridge case, forming pools, and a very little free nitro-glycerine was quite sufficient to set off the whole of the charge.

The experiments also demonstrated that when pressures not exceeding 15 tons were employed, almost any degree of slow burning could be obtained with these smokeless powders, and this again led to the suggestion that they might advantageously be employed in throwing aerial torpedoes from large guns.

The greater part of the smokeless powders employed to-day consist of a mixture of nitro-glycerine and gun cotton. The mixing is brought about by the agency of acetone, a species of alcohol which dissolves both gun cotton and nitro-glycerine. When a small quantity of this spirit is present the mass is of a semi-plastic consistency and may be squirted or spun through a

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die by pressure, in the same way that lead pipe is made. The first powder experimented with was drawn into threads and called by the British Government "cordite." This was found to work admirably in small-bore ammunition, but when it came to a question of larger guns it was found advantageous to form the powder into tubes with one or more holes. It will be readily understood that when the powder was drawn into long, cylindrical threads the burning surface, and consequently the evolution of gas, would constantly diminish as the threads burned thinner. When, however, the powder was made tubular, the burning from the inside and outside being equal, the burning surface remained practically constant and produced much better results in the larger type of guns than it was possible to produce with the solid threads or sticks of powder. By increasing the number of perforations, it was found that a powder could be made which, instead of burning slower and slower as the projectile moved forward in the gun, would cause the development of gas to increase as the projectile moved forward with accelerated velocity in the bore. This was exactly what was required, and led to my patent on progressive smokeless powder—that is, the powder in which the burning surface increases while it is being consumed, instead of diminishing, and it was thought that this might be advantageously employed instead of compressed air for throwing torpedoes or high explosives.

At that time it was generally understood that modern smokeless powders were inherently slow burning, and experiments of Sir Andrew Noble seemed to point in this direction. Still it was believed by many that it would not be safe to throw any high explosive from a gun using a similar explosive as a propellant, for fear of the charge being detonated by what is known as sympathetic action.

In order to settle the question as to whether cordite would burn slowly in large quantities or would detonate, the British Government made a very interesting but disastrous experiment at Plumstead. A large quantity (a ton or so) of smokeless powder was set on fire. It flared up for a few seconds, and then detonated exactly like dynamite, excavating a hole in the earth about 15 feet in depth and 20 feet in diameter, and breaking a great deal of glass within a radius of a mile. This seemed to prove that when this kind of powder was ignited in large quan-

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tities the rapidity of burning went on in geometrical progression, commencing slow at first, then as the pressure of the gas increased the heat, the heat increased the rapidity of burning, the rapidity of burning again increasing the pressure of the gases on the burning surface, which again re-acted upon the heat—thus action and reaction taking place in rapid succession. The rapidity of burning very soon approached to the point known as detonation. Others claim that the powder detonated on account of the presence of a considerable quantity of free nitro-glycerine which had been evaporated and condensed or had oozed out of the surface of the powder, it being remembered that the British Government powder contains 58 per cent. of nitro-glycerine.

Wishing to arrive at the exact truth in this important and interesting problem, I procured a considerable quantity of various grades of smokeless powder, the surface of all of them being quite free from exuded nitro-glycerine. I filled two large steel cylinders with this powder, placed them in close proximity to each other, and inserted a fuse with a very large detonating cap in cylinder No. 1. When the fuse was fired, both the cylinders detonated exactly like so much dynamite, making a deep excavation in the earth. Had I used only a small fulminating cap, the first steel cylinder would have exploded before half the powder had been consumed, and a large quantity would have been found unconsumed in the immediate vicinity, while the second cylinder would not have exploded at all. These experiments went to show that all forms of modern smokeless powder can be detonated, providing that the fulminating charge that sets them off is sufficiently large and powerful.

In one lot of foreign made rifle ammunition we had four cartridges out of a lot of 40,000 detonate and destroy Maxim guns. This was probably due to carelessness in putting two charges of fulminating powder in the primer instead of one.

Nitro-glycerine is slightly volatile—that is, air coming in contact with nitro-glycerine will take up a very small quantity of it, and it has been found that where English cordite with its large percentage of nitro-glycerine is being dried (that is, deprived of its acetone), all the surrounding objects in time become coated with pure nitro-glycerine. This led me to believe that under favorable conditions the nitro-glycerine of the cordite might be

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transferred from the cordite to the metallic case of the cartridge. I therefore constructed a cylinder in which I placed about ten pounds of cordite. This cylinder was provided with a water jacket and heated by gas, the flame being regulated by a thermostatic regulator which kept the temperature constant at 100 degrees F. A similar but smaller cylinder was connected to this top and bottom, but instead of being heated, it was cooled by a circulation of water. By this arrangement, when the apparatus was hermetically closed, there was a constant interchange of air, the air passing up through the heated cylinder containing the cordite, and down through the cooler cylinder. At the end of one week, pure nitro-glycerine commenced to run out into the bottle attached to the lower end of the cold cylinder, and this continued for several weeks until a considerable quantity was obtained. Upon making the same experiment with cordite containing only 10 per cent. of nitro-glycerine, only a few drops of water which proved to be quite free from nitro-glycerine were obtained. As it only requires a very small quantity of free nitro-glycerine to make a cartridge detonate instead of exploding in the ordinary way, it is believed by some that when large cartridges loaded with cordite are kept for a considerable time in varying temperatures, they will become dangerous on account of the free nitro-glycerine, which may collect in the cases or be condensed as a dew over the whole of the interior of the metallic cases. In the olden time when guns were not rifled, and spherical shots were employed with a powder charge of about one-eighth of the weight of the projectile, the erosion caused by the gases passing the projectile was so small as to be considered a negligible quantity—in fact, its existence was practically unknown to the majority of artillerists at that time, but upon the introduction of rifled guns with elongated projectiles and heavy powder charges erosion became a serious obstacle, which increased as the power and range of the gun increased. Large guns made in England from 10 to 15 years ago, using black or cocoa powder with projectiles of 3 or 4 calibres, and having a velocity rather less than 2,000 feet per second, were destroyed after firing from 300 to 400 rounds. When the velocities were increased to about 2,200 feet it was found that the wear was about four times as great, while some very powerful guns made in France were completely worn out after firing 60 rounds. With smokeless powder, which gives a still higher velocity to the pro-

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jectile, the erosion is still further increased, so that in some cases I have known guns to be destroyed after firing only a few rounds.

The next step was to prevent this cutting away of the steel from the inside of the gun by the action of the white-hot gases moving at a terrific velocity past the projectile. Various kinds of copper driving bands have been experimented with. These driving bands consist of a copper ring let into the projectile near its base, the periphery of the ring being of a sufficient diameter when pressed forward into the rifling to form a gas-tight joint between the projectile and the rifling, and at the same time give the necessary rotatory motion to the projectile. It will be understood that the copper band is the only part of the projectile which enters the grooves, or, as is said, "takes the rifling." These bands work very well while the barrel is quite new, but as soon as a small quantity of gas passes, the steel becomes very rough, so that the copper bands are cut away by the rough steel, while the passing gases from each successive shot make the steel still rougher, sometimes scooping out holes as big as a filbert after only a few rounds have been fired.

In order to obviate this trouble we have provided the projectiles with what might be termed an obturating band; that is, just behind the copper driving band we have placed a semi-plastic gas check. Behind it is placed what might be termed a junk ring, arranged in such a manner that when the gun is fired the junk ring moves forward and subjects the gas ring to a pressure 20 per cent. greater than the pressure in the gun—that is, if the pressure in the gun amounts to 14 tons per square inch the pressure on the gas ring is about 17 tons to the square inch. This is found to completely stop the passage of gas between the projectile and the bore of the gun; so we are now able to fire large guns many hundreds of rounds with full charges before any perceptible wear takes place in the barrel. This will enable our naval authorities to practice gunnery to almost any extent without the danger of wearing their guns out, and it is believed by many that in the near future no large guns will be fired on shipboard without the employment of the obturating gas check.

HIRAM STEVENS MAXIM.

London, July, 1898.

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SOME ASPECTS OF LUXURY.

BY F. SPENCER BALDWIN, PROFESSOR OF ECONOMICS IN BOSTON UNIVERSITY.

DISCUSSION of luxury centres naturally about two questions: Is luxury profitable; does it promote the industrial welfare of the individual and of society? Is luxury right; does it involve any moral injury to the individual or to society? To answer these questions fully would involve an exhaustive dissertation on the economics and the ethics of luxury. This paper does not attempt such a task; it aims merely at suggesting some of the more important considerations bearing on the problem of luxury.

The justifiableness of luxury is one of the most debated subjects in the field of social economics. The debate has been conducted largely on the plane of abstractions. And on abstract grounds it is easy for an ingenious debater to construct an argument for or against anything. He needs merely to invent a squinting definition of the thing to be defended or condemned, and then to deduce from the definition the inevitable conclusion wished for. He draws out with a triumphant flourish just what he has put in. There has been a deal of this shuffling with definitions in discussions concerning luxury.

A good example of this style of argument from definition is furnished by M. Emile de Laveleye in his entertaining but illogical essay on luxury. M. de Laveleye defines luxury as "the consumption of what it has cost great labor to produce for the satisfaction of spurious needs." * Therefore, all luxury is to be condemned, for it is obviously both wasteful and sinful to expend great labor for the satisfaction of spurious needs.

This question-begging method of definition has so confused the subject under discussion that it becomes necessary at the out-

* De Laveleye: "*Luxury*," p. 27

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set to state with some precision in what sense the word luxury is here used. In ordinary speech we refer to necessaries and luxuries as contrasted with each other. Sometimes we speak also of conveniences and comforts, using these terms loosely to designate things intermediate between the extremes, necessaries and luxuries. The four-fold distinction thus vaguely shadowed forth in popular usage can be stated somewhat definitely, thus: A necessary is something indispensable to physical health; a convenience is something that relieves from slight pain or annoyance, not essentially detrimental to health; a comfort is something that affords positive pleasure, but is a common and inexpensive means of enjoyment; a luxury also is something that affords positive pleasure, but is an unusual and expensive means of enjoyment. Thus, for example, food of some sort is a necessary; utensils to eat with are conveniences; table linen and a table service are comforts; silver plate and cut glass are luxuries.

The first three classes make up together the standard of life. This includes, then, the amount of necessaries, conveniences and comforts which an individual, a class or a society regularly demands. Everything beyond this is luxury. Whatever an individual, a class or a society can dispense with, according to the prevailing standard, without injury, inconvenience or discomfort, may be termed a luxury. This definition, it will be noted, draws no hard-and-fast line between luxuries and non-luxuries. This is not possible. The line is a shifting one. The classification is relative to time and place; it depends on habit in the case of the individual, on custom in the case of groups of individuals. What is a luxury to one is a mere comfort, or even a necessary, to another. Luxuries tend in time to develop into necessaries. Shoes, once a luxury of the few, are now a necessity of the many. A place to sleep under cover is now regarded as absolutely necessary to physical health; but even this becomes a luxury under certain conditions of time and place. One thinks of Sir Walter Scott's Highlander, who, sleeping on an open moor in the dead of winter, rolled up a ball of snow for a pillow; his companion at once kicked it away as a sign of effeminacy. It should be borne in mind, then, that the notion of luxury is a purely relative one, the line between luxuries and non-luxuries a constantly shifting one. Indeed, the passing of luxuries into the class of common comforts is only one name for advance in material civilization.

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In most of the discussions of luxury that have come under my notice the verdict has been unfavorable. Luxury has fared rather hard at the hands of both economists and moralists. Occasionally, to be sure, an apologetic voice is raised in defence of luxury, but it is soon drowned in the general chorus of condemnation. The condemnations of luxury range all the way from the rhetorical fulmination of the pietistic fanatic to the sober indictment of the social philosopher. With the former we need not concern ourselves. The latter alone will claim our attention.

On economic grounds the indictment against luxury contains two main counts, closely related and yet distinct: First, luxury diminishes the industrial efficiency of the individual; second, luxury retards the accumulation of capital, and consequently the growth of society in material wealth. The first count may be dismissed. It has no force as an argument against luxury in general. It holds merely against particular luxuries, and in the case of particular persons. Whether a luxury diminishes industrial efficiency depends on what sort of a luxury it is, and what sort of an individual is using it. Because some luxuries are bad we should not leap to the conclusion that all luxuries are to be condemned.

The economist who indicts luxury on the ground that it makes men lazy loses sight entirely of the effect of the prospect of luxury in making men work. If luxury itself tends to slacken the energies of individuals, the desire for luxury tends to quicken their energies. The second tendency is at least as strong as the first. I am inclined to believe it the stronger. Men would probably work less rather than more if the prospect of luxury were taken away. A very powerful motive to industrial activity would thus be destroyed.

The second count in the economic indictment of luxury—that it retards the formation of capital—is next to be examined. It may be well to state at once that this charge is indisputably true. Luxury does diminish the accumulation of capital. You can't both eat your cake and save it. But is it sound social economy to save as many cakes as possible? This appears to me to be a debatable question.

The orthodox economist answers: "Yes; spend as little and save as much as you can." The classic dogma of the universal beneficence of saving is very dear to the heart of the political economist.

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His ideal is the largest possible production of material wealth. The increase of production depends largely on the accumulation of capital. Capital is accumulated by saving. To save is, therefore, more virtuous, from the traditional economic point of view, than to spend. Luxurious expenditure means waste of wealth that ought to have been saved and added to the stock of social capital. The money squandered on luxuries, if saved and invested in productive enterprises, would give employment to labor and increase the production of wealth.

The wayfaring man, untrained in the principles of economic science, has always looked with an approving eye on the prodigal spender. He has a notion that liberal spending makes trade good. This notion the economist assures us is a popular fallacy. He reproaches with shortsightedness the men who condone luxurious expenditure. The latter "fails to see"—that is the economist's favorite way of putting this point—that the person who spends money on luxuries, although he may indeed benefit trade in a certain way, and cause some employment of labor, would confer a vastly greater benefit on the community if he saved his money and invested it in some business. The millionaire epicure who spends annually $100,000 on his table, gives employment, to be sure, to an army of cooks and bottlewashers; but, if he had not spent his money in this way, he might have built a shirt factory. He would then have given employment to an army of productive laborers, and would have added to the stock of useful goods in the community.

Now, this traditional doctrine of political economy regarding saving has of late been assailed with great vigor by a group of critics, who hold it to be false to the ground.* These critics, in the opinion of the writer, have decidedly the better of the argument. They have successfully demolished the classic dogma of the universal beneficence of saving. They have demonstrated that saving, although it may be sound policy for the individual, is not always beneficial to the community. It may easily be carried too far. If everyone spent only the necessary minimum, saved as much as possible, and invested the savings in productive enterprises, obviously the demand for the products of these investments would be cut off, and the whole industrial machinery would be brought to a standstill. A state of general overproduction, or un-

* See especially J. M. Robertson: "*The Fallacy of Saving.*"

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der-consumption would result, if all members of society acted strictly according to the advice of the economist. It is probable that society at the present time is suffering from an excess of saving, and the accompanying phenomenon of under-consumption. If we spent more and saved less, the industrial situation would be improved. An increase in expenditure would restore the lost equilibrium between production and demand.

The conclusion follows, then, that under present conditions luxurious expenditure really promotes the economic interests of society. Whether such expenditure be economically justifiable in the case of a given individual depends, of course, on his circumstances and resources. But this is a question of individual, not social, economy. From the social point of view, luxury is to be defended on the very ground on which the orthodox economist condemns it, namely, because it does retard the growth of capital.

Let us leave the economist and turn to the moralist. He, too, holds a brief against luxury. He assures us that luxury is a burden. "Vanity of vanities," saith the Preacher. "Surely this is vanity, and it is an evil disease." "The sleep of a laboring man is sweet, whether he have little or much; but the abundance of the rich will not suffer him to sleep." The father of Political Economy, Adam Smith, speaking in his earlier *rôle* of moral philosopher, gives utterance to opinions very like those of the Preacher. "Wealth and greatness," he declares, "are mere trinkets of frivolous utility, no more adapted for procuring ease of body or tranquillity of mind than the tweezer-cases of the lover of toys; and like them, too, more troublesome to the person who carries them about with him than all the advantages they can afford him are commodious. In ease of body and peace of mind all the different ranks of society are nearly upon a level, and the beggar who suns himself by the side of the highway possesses that security which kings are fighting for."* This notion that luxury is a burden meets us also in the essay of M. de Laveleye. He writes: "Diogenes one day saw a man drinking water from the palm of his hand, and immediately threw away his bowl to do likewise. Economically, he was wrong, for there is more satisfaction and less trouble in drinking from a glass than from one's hand; but the idea on which he acted was,

*Quoted by H. Sidgwick, "Luxury," in *International Journal of Ethics*, October, 1894.

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in my opinion, sensible enough. When discussing this question of luxury one day, I expressed a wish that instead of having feet, which we must constantly protect from stones and thorns, as well as from the damp, we might have horses' hoofs, and so dispense with shoes and stockings and all their attendant discomforts. I was laughed at for this idea, and it was nicknamed Sabotism. But I persist in believing that our needs are so many weaknesses, which divert us from the ideal and overwhelm us in worldly interests. Without wants we might be like the lilies of the gospel, 'which toil not, neither do they spin,' or we might even resemble those persons of independent means who pass from one delightful spot to another, enjoying at their ease the beauties of nature."* From M. de Laveleye's point of view it must appear equally deplorable that we are not provided with hairy coats, so that we might avoid the irksome necessity of dressing; that our palates are not coarse enough to put up with hay, so that we might escape the grievous trouble of breadwinning. It is a sort of cow-philosophy which de Laveleye here voices. Without wants we should resemble rather the cows of the pasture than the lilies of the field.

The arraignments of luxury on ethical grounds, when pared of emotional extravagances, may be reduced to these two propositions: First, luxury demoralizes the individual, making him sensuous and self-indulgent; second, luxury wrongs the poor, through the waste of money that ought to have gone to charity. The ethical argument against luxury thus rests partly on an individualistic, partly on a socialistic, basis.

The first of these propositions is a wild generalization. It is not true that luxury *per se* is demoralizing. All depends on the kind of luxury in question. The right sort of luxury refines the individual, enriches his life, and heightens his social efficiency. In the main, luxury has exhibited itself as a great moralizing and civilizing agent. The second proposition requires more detailed examination. Luxury is condemned on the ground that it absorbs the means that ought to be devoted to the relief of poverty. This thought finds expression in the following passage from one of Mr. Goldwin Smith's essays: "When did wealth ever rear such enchanting palaces of luxury as it is rearing in England at the present day? Well do I remember one of those palaces, the most conspicuous object for miles around. Its lord was, I dare say, consum-

*De Laveleye: "*Luxury*," p. 73.

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ing the income of some six hundred of the poor laboring families around him. The thought that you are spending on yourself annually the income of six hundred laboring families seems to me as much as a man with a heart and a brain can bear." * From this point of view it appears sinfully extravagant to spend money on superfluities, when so many people are without necessities. The money spent for a box of Havanas would have supplied some underfed family with flour for a twelve-month. Luxury thus virtually involves robbery of the poor. There is a haunting idea in the background of this opinion that some occult causal connection exists between the wealth of the few and the poverty of the many. The poor are getting poorer because the rich are getting richer. The millionaire is responsible in some mysterious way for the plight of the proletarian. "If one of my subjects is idle," said an emperor of China, "then there is somewhere in my state another who suffers from hunger and cold." Since, therefore, the rich man has obtained his wealth at the cost of the poor man, he owes the latter reparation for this injury. Charities are thus regarded as a kind of peace offering, incumbent on the man of wealth because of his supposed responsibility for the poverty of his neighbors. All luxurious expenditure is culpable, for it wrongs the poor.

This notion that there is necessarily any causal connection between opulence and poverty is too crude to require serious refutation. The wealth of society is not a fixed fund, of which, if one may get more than an equal share, some one else is bound to get proportionately less. It is rather a variable mass, which each individual can augment or diminish by his efficiency or inefficiency. If one man has more wealth than another, it is generally because either he or his ancestors have produced more. He is under no obligation to dole out his surplus. This does not mean that the possession of wealth carries with it no obligations. The man of wealth is morally bound to administer his trust in a way that shall promote and not retard social progress. This is an ethical commonplace which needs no emphasis. But it does seem to need emphasis that the possession of wealth involves no moral wrong to the poor which must be tardily made good by liberal giving. It is not wicked to be rich. The man of wealth is not bound to make restitution to his poor neighbor. He cannot be censured if he spends his income on luxuries—in a judicious way, of course.

* Goldwin Smith: "The Labor Movement," *Contemporary Review*, Jan. 1, 1873.

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Indeed, the man who spends wisely on luxuries does more substantial good to society than the man who gives indiscriminately for charities. The former creates employment for laborers; the latter pauperizes them. Even foolish extravagance is a lesser evil than reckless alms-giving.

This argument that we have just been considering is really an arraignment of the existing system of distribution, not of luxury. So far as the argument has any force at all, it turns against the justice of the present distribution of wealth; it has no bearing on the expenditure of wealth. If the present system does involve injustice, by giving too much to the capitalist and too little to the laborer, then it is a reform of the whole plan of distribution that is called for—not a mere readjustment of private expenditure. If, under the existing system, the rich man gets more than his fair share, the system should be changed so that he will get less. But he should not be morally enjoined from spending on luxuries. As applied to luxury, this argument is misdirected.

The sweeping condemnation of luxury *per se* by the Puritan moralist has very little ground to stand upon. No case can be made out against luxury on ethical grounds. But let us not rashly go too far in the opposite direction, and pronounce luxury in all forms to be wholly good. There are justifiable and there are unjustifiable luxuries. The question whether a particular luxury be justifiable or culpable turns upon two considerations—first, upon its effects on the individual, and, second, upon its effects on society. In general, it may be laid down that a luxury which contributes to the efficiency of the individual, in the widest sense, and which does not impose on society for the satisfaction of its demands an unwholesome and degrading form of labor, is perfectly justifiable. This sanction of luxury is not to be stretched to cover unlimited self-indulgence. The part played by rational self-sacrifice in the development of character is not to be overlooked. Constant self-indulgence is demoralizing. But, in general, a man has a right to spend money for anything that enriches and diversifies his life, and thus aids in the developing and rounding out of his personality, provided the labor that is required for the production of the articles in question be agreeable and innocuous. On the other hand, a luxury that demoralizes the individual, or calls for a noxious form of labor, is unjustifiable. This is rather a mild restriction. But it is as far as the cautious moralist will go in

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general condemnation of luxury. So far he is on safe ground. To go beyond this is to land in a quicksand of absurdities and extravagances.

The question of the relation of luxury to progress in culture has been touched on only incidentally in the course of the preceding discussion. It is here, however, that luxury finds strongest justification. Professor Sidgwick, of Cambridge, England, distinguishes two main elements of culture—first, the apprehension and advancement of knowledge; second, the apprehension and production of beauty. The progress of culture involves advance along both these lines—intellectual and æsthetic. It is the second line of progress that is promoted by luxury. "I find," says Professor Sidgwick, "that the study of history leads me continually to contemplate with sympathy and satisfaction the opulence and luxury of the few amid the hard lives of the many, because it presents itself as the practically necessary soil in which beauty and the love of beauty grow and develop; and because I see how, when new sources of high and refined delight have thus been produced, the best and most essential of its benefits extend from the few to the many, and become abiding possessions of the race." *

The order of culture-progress is in brief this: There sets in a differentiation of society into classes. One class forges ahead, developing new wants and inventing new means for satisfying these wants. When it first appears, each new want-satisfier is a luxury. But the luxuries of the few in one generation become the common heritage of the many in the next. For the lower classes, spurred by the example of the upper class, push on successively in their turn to a higher plane of civilization. Thus the whole society advances, class-wise, from stage to stage. The higher gains of civilization, at first enjoyed by only one class, are gradually diffused among the masses. Luxury is a main factor in this onward movement of the race. It deepens and enriches the content of life. The desire for it furnishes a chief motive to social advancement. Without it, existence would become a stagnant monotony. It stands for much of the beauty, grace and variety which alone make life really worth the living.

F. SPENCER BALDWIN.

* In *International Journal of Ethics*, October, 1894.

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OLD WAR PRISONS IN ENGLAND AND FRANCE.

BY MAJOR ARTHUR GRIFFITHS, H.M. INSPECTOR OF PRISONS.

THE treatment accorded to prisoners of war during the early years of the present century, by the two nations that were long the chief belligerents, was altogether at variance with modern humanitarian ideas. We can hardly imagine that the same horrors would be perpetrated, if hostilities as fierce and protracted were to disturb the world in these latter days. Public opinion, not only in the countries concerned, but throughout the civilized world, would certainly find voice to denounce any gross neglect or any cruel ill-usage of its captives by a callous and brutal government. Still, past experience contains many valuable lessons; and to know what was done in the past is some guarantee that it will not be done again.

Of course, the same conditions may not reappear. Fewer prisoners will probably be taken in future wars, certainly as the result of sea engagements; while modern science has multiplied the destructiveness of modern weapons, modern battle-ships are so many iron coffins that will sink, when worsted, with all on board. Again, we may never see the revival of the Napoleonic system, which was obstinately opposed to cartels and exchanges, and under which the prison population was constantly augmented as the war went on, yet rarely depleted save by natural causes. What this meant is best shown by figures. It has been calculated that, in the eleven years between 1803 and 1814, some 122,000 French prisoners in all were brought into England. Of these not more than 18 per cent. were paroled or exchanged; about 10 per cent. died in the prisons, and the residue remained in British hands until the peace. It was much the same in France, although the numbers were lower and would have been still less but for Napoleon's high-handed and unjustifiable detention of non-combatants on the declaration of war. The Emperor was also largely responsible for

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the sufferings endured by the prisoners of both countries. They had little hope of release by legitimate means, and this led to the overcrowding already mentioned, and stimulated attempts at escape, which, when they failed, entailed the harshest reprisals.

The earliest method adopted in England for housing the French captives was their confinement in the "hulks," the "water" or floating prisons—obsolete men-of-war converted into places of durance, and stationed mostly in the Medway, at Chatham, or in the harbors at Portsmouth and Plymouth. These were the "*pontons*" of Napoleon's bulletins, the target of his bitterest invective, the foul receptacles where his braves languished perpetually, although many might have been forthwith freed if he had changed his policy towards the English "leopards." The first hulks employed were not to be defended. After many due deductions for a certain exaggeration of statement, the pictures that survive of the hulks, drawn by some of those who were confined in them, are dark and discreditable. One, M. Louis Garneray, who was captured in the "*Belle Poule*," off the coast of Africa, by H. M. S. "Ramillies," found himself in the hulk "Porteus," a two or three decker, at Portsmouth, in 1806. On arrival, under military escort, he was "brutally thrust" into the midst of a wretched, hideous crowd; he might have been "among corpses" that had just risen from the grave, with "hollow eyes, wan, cadaverous complexions, bent backs, beards neglected, emaciated bodies, scarcely covered with yellow rags." The latter were the shreds of prison uniform he was now compelled to put on—skimpy, badly made jacket and trousers of coarse yellow cloth and a red waistcoat, all stamped with the letters "T. O.," in black, the mark of the Transport Office, the department of state that controlled all prison business, especially transportation beyond the seas.

The part appropriated for air and exercise was the forecastle and "waist," a space 44 feet by 38 feet, called, by those who used it, the "Park." It was not open to the sky, but boarded over with strong planks, loopholed, through which the guards from without could fire in on the prisoners in case of outbreaks or disturbance. Below, the prisoners occupied the orlop and lower gun decks, each 140 feet long, by 40 feet wide and 5 feet high. Within these limits, some 700 persons or more slept in hammocks, two tiers of them, each hammock containing a flock mattress and one thin blanket. Those who could pay for it were permitted to construct

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a standing bed place of boards. These "between decks" were very dark, and the small portholes were obstructed by stout iron bars; the place was infested with vermin of the worst kind, and the ventilation was so atrociously neglected, the air became so poisonous, that the ship's officers, when they took off hatches in the morning, were afraid to breathe it and ran for their lives. At night the candles would not burn for lack of oxygen, and the prisoners lay naked on account of the intolerable heat.

The dietary was coarse, insufficient and repugnant to French taste. The daily ration consisted of one and a quarter pounds of dark bread and seven ounces of "cow beef;" a small modicum of barley and onions was issued, to make soup for each mess of four men. The dinner meal varied a little; one day in the week a pound of red herring with a pound of potatoes was given; another day a pound of salt cod. These allowances were enough in the gross, but they were diminished in weight by cheating contractors, or were so foul as to be unpalatable. The herrings were so detestably bad that they were often sold back to the contractor at a trifling price, to do duty again later as the authorized ration. The writer I am quoting, Louis Garneray, declares that the same herrings regularly reappeared for ten years. The salt cod was just eatable, but the bread was as heavy as lead, and often short in weight; to complain of it meant going without until the evening, when the superior official gave his decision as to quality and quantity. Water was brought off to the hulk in small boats, and it had to be pumped on board by the prisoners. Still worse stories were current as to the insufficiency of the food. In 1811 a mutiny occurred on board the "Samson," caused by the desperate hunger of the half-starved inmates. Some doubt may be expressed as to an incident that is alleged to have occurred at the Portchester barracks, used in connection with the Portsmouth hulks. It was stated in all seriousness that a military mounted officer who visited the barracks, and had been so imprudent as to tie up his charger at the gate, missed his horse when he came out. It had been killed, cut up and eaten raw by the famished Frenchmen. The same fate, it was asserted, overtook the dog of the butcher who served the barracks—very inadequately, if the story is to be believed.

These accounts were, no doubt, overcolored, though not without some foundation in fact, during the earlier years. The over-

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crowding was deplorable, 1,200 or 1,300 being confined in a three-decker, 700 or 800 in a two-decker. But, as time passed and numbers increased, reforms became imperative and were in due course introduced. The hulks were of a better class, their fittings and arrangements were improved. The "between decks" were cleared of bulkheads and obstructions, so as to give free circulation of air, the ventilation was rectified, the bedding was kept cleaned and well aired. Mr. Croker, Secretary to the Admiralty, after an official visit to Portsmouth, reported that he had found the prisoners happy and comfortable; "well fed, cleanly, provided with amusements, including billiards and music." Admiral Sir George Warrender made a similar report on the condition of the Chatham hulks.

An effective step toward ameliorating the lot of all was made by reducing the population of the hulks. It was very soon decided to build special prisons for the war captives, and in 1806 the first stone of the great Dartmoor establishment was laid by the Lord Warden of the Stanneries, Sir Thomas Tyrwhitt. The wide upland waste of Dartmoor is part of the Duchy of Cornwall, the private estate of the Duke of Cornwall, better known as H. R. H. the Prince of Wales, who is to this day lord of the manor and receives a "ground" rent from Dartmoor Prison. The "War Prison," part of which is still standing, and still so called, was built, at a cost of £177,000, of limestone quarried in the immediate neighborhood. It was soon filled, and with a dense population which is reported to have amounted, at times of greatest pressure, to some 10,000 souls. These figures seem, however, to be excessive; from official returns published by the Transport Office the total population in Dartmoor was 5,354 in 1810 and 6,329 in 1811. Probably the war with the United States, which presently followed, served to increase the number. Of equal importance with Dartmoor, were the inland establishment of Norman Cross, which held upward of 6,000; the prison at Stapleton near Bristol, 5,000; the Valley Field Prison, near Edinburgh, 21,500. Still more important were the hulks and land prison at Portsmouth, containing, in 1810, 12,000, to be reduced the following year to 9,000, thanks to the relief afforded by Dartmoor and the others; the Plymouth hulks and prison, 7,000 and 8,000; those of Chatham, between 4,000 and 5,000.

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Contemporary records have preserved for us many striking details of the conditions of life in these sorrowful retreats; the daily organization and discipline, the many moving incidents that from time to time broke the otherwise hopeless monotony. Some prisoners, by far the largest number indeed, met the inevitable with courage and commendable philosophy, striving bravely to make the best of their sad lot. Others, and they were not few, chafed so bitterly at their bonds that they spared no pains, faced any risks, to win free from them. The history of the old prisons is an alternation between desperate disturbance, determined and often successful attempts at escape, and the calm conquest of adverse circumstances by accepting and controlling them. Let us consider the latter aspect first.

To gain some ease was generally the aim of all. The possession of money meant everything to these poor creatures. It eked out their meagre allowances of food. It gave them better clothing, the luxury of gambling, always a most engrossing vice. Above all, the accumulation of a secret hoard of cash was a first step towards any bold stroke for freedom. Some few were supplied with funds from sympathetic friends in England, as well as in their own country; but most were dependent upon their own ingenuity and patient exertion. All manner of trades and handicrafts, old and new, were followed in the war prisons. The French prisoners were especially industrious and skillful. They invented manufactures, such as the elaborate plaiting of straw and hair into articles of use and ornament. They were adepts in turning out artistic trifles, chessmen, models of ships, boxes of filigree of elaborately carved ivory, wood and bone. Some knitted socks and woollen nightcaps; some followed tailoring and lace making; some made boots and shoes and musical instruments. One clever fellow produced tobacco, "heaven knows from what," says one who bought it.

There was another class of work, however, in which they excelled, and which flourished in spite of all precautions. Spanish dollars were collected for them in great numbers by persons without the prison, and from every silver dollar they contrived to produce eight English shillings. There was maintained also a secret manufactory of spurious Bank of England notes, for which it was suspected the guard furnished materials. So perfect was the imitation that, even at the bank itself, the forged

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notes often passed undetected. In order to stop this flagitious traffic, the guard was always searched before being relieved. Many thousands of the notes, however, were put into circulation in this manner. Such prisoners as were masons and carpenters were allowed to engage themselves on the works constantly in progress at the prison. Thus, two of the main prisons, and the walls of the chapel at Prince Town, Dartmoor, were entirely built by the French themselves, soon after their first removal from Plymouth. Prisoners found employment in repairing the roads, or as blacksmiths, coopers, painters and nurses in the hospital. All those privileged to pass beyond the enclosure wore a small tin plate in their caps, and worked under the eye of the guard. If any prisoner escaped, the working pay of the whole party to which he belonged was forfeited.

At most of the prisons there was a regular market held outside the first wall, to which dealers came to traffic. In the hulks these traders were permitted to visit the ships, and freely circulated among the prisoners, crying, "Who sells? Who buys?" The profit made must have been small, although high prices are said to have been paid occasionally for some peculiarly beautiful piece of work; and the more thrifty of the French prisoners are said to have got together very considerable sums during their long detention of seven or eight years. At the peace, indeed, some were reluctant to take their leave, and others carried off with them savings to the amount of one and two thousand pounds. There were other methods of earning money besides production; at the hulks, we are told, there were professors of fencing and music, dancing masters, teachers of languages and mathematics, whose lessons could be obtained at the modest rate of a halfpenny an hour. Instruction was carried out under very adverse conditions, yet many made substantial progress; and it is affirmed that, in some cases, rude, ignorant seamen, who could not form a single letter of the alphabet nor read a single syllable, learned to read and write fluently and obtained a competent knowledge of geography and mathematics. Books and instruments were hard to come by, and study was difficult because of the noises on deck overhead during the day, while at night lights were forbidden. The most earnest scholars were often the poorest among the prisoners, and, being unable to buy candles, they were forced to make a lamp for themselves. At dinner time, each student

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was bound to set aside every atom of fat in his food; this fat was collected in a large shell and, when sufficient, a wick was added. After night closing, the lamp was set above a table and surrounded by a wall of mattresses and blankets, every chink was stopped to hide the light from the sentries, who were ever on the watch through the portholes. The chamber within became so heated that the men at work sometimes fainted; yet all these precautions were rendered necessary by the stringency of the discipline. Whenever prohibited lights were detected in use, the culprits were sentenced to the "Black Hole" on limited allowance of food, and the whole of the school utensils were destroyed.

All the inmates of the war prisons were not, however, equally industrious, sober-minded, and eager for improvement. There was in every prison a large section of utterly reckless and improvident wretches, living constantly in the most absolute destitution and misery, to which they had been brought by their uncontrollable passion for gambling. These, in the hulks, were called *rafalés*, and they lived in seclusion apart from the rest. They had long since gambled away everything, hammocks, blankets, mattresses, even their clothes; many were all but naked and, when roll was called, two or three would hire among them an old blanket to cover them as they came on deck, for the use of which a halfpenny worth was deducted from their next day's rations. The rations of these *rafalés* were often pledged five or six days in advance, and then, pinched with cold and half-starved for want of food, they wandered about the piles of offal, grubbing up potato peelings and onion skins, now a herring head or a cabbage stump, anything that would satisfy their raging hunger. Yet two *rafalés* were known to have gambled for the possession of the scraps which each had discovered. At night, they lay closely packed, for the sake of warmth, on the deck, all of them on one side, and, when tired of the position, at the signal "Tack!" the whole turned over together. Terribly loathsome as was their condition, it yet possessed its attractions; for outsiders of the general body would occasionally ask to be admitted to the fraternity. The aspirant to be a *rafalé* was first obliged to sell all he possessed, to stand treat of beer and bread; then he was given a stone for his pillow and was fully admitted to the misery of membership.

Corresponding to the *rafalés* of the hulks were the Romans of

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Dartmoor, so called because they occupied the "capitol," or topmost story of the prison buildings. They were even more degraded and incorrigibly vicious. It was one of their rules that none should possess a single article of clothing; but each wore, when necessary, a blanket with a hole cut in the middle, through which the head was thrust. They had no hammocks. Every candidate for admission into their order, as in the case of the *rafalés*, sold his bedding to buy tobacco as a treat for his new comrades. At night they lay upon the bare boards without covering, taking the word to lie down from their general, and when he ordered "*Bas!*" all stretched themselves on the floor in perfect order and silence. This general, whom they elected for themselves, possessed certain privileges; the dignity of a hammock, but without mattress or covering, and the right of wearing on certain occasions a kind of uniform curiously worked and embroidered with straw. The Romans were generally restricted to their own part of the prisons, but they were to be seen at times in the passages and purlieus, fighting like dogs for any chance bone. On one occasion the whole body, some six hundred strong, made a descent upon the prison kitchen, seized all the supplies, overpowered the guards sent to suppress the riot, and then paraded the courtyard with loud cries of "*Vive l'Empereur.*" Reinforcements soon arrived, and the Romans were in turn subdued.

Any close supervision or control by the proper authorities was impossible in these crowded receptacles. Good order was secured by self-government, in the absence of official regulations. The inmates were of the most varied character; almost every nationality was represented: French, Spanish, Portuguese, Italians, Swiss, Germans, Poles and Swedes, so wide reaching was the Napoleonic Empire. Very early in the history of Dartmoor and the other prisons, a "Constitution" was devised by these mixed peoples, a president was elected by the whole body, and each building or apartment chose its own commissary to act under him. Universal suffrage was the rule, and the election was by ballot; but, although all could vote, all were not equal in the constituency. The whole body of prisoners was divided into several distinct sections. There were, first, the "lords," those who received supplies of money from home and who, with this capital, traded within the walls, opening shops, where they retailed tobacco, thread, soap, coffee, etc., to their comrades, having pur-

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chased these articles wholesale in the market square. Next came the "labourers," the handicraftsmen already mentioned, who added to their means by their industry. Thirdly, there were the "indifferents," who idled and bore their lot without an effort to improve it. Then came the *"minables"* and *"kaiserlichs,"* who thought of nothing but gambling, and who were but one remove above the Romans and the *rafalês* already mentioned. All these several orders, however, rendered ready obedience to their self-appointed officers, and these officers wielded absolute power. They were the interpreters of the prison laws, exercising general surveillance and calling all offenders to strict account. On one occasion, the careless cooks of a ward who had boiled a number of rats in the soup were condemned to death, but were subsequently respited. The sentence was, however, no figure of speech. It is known on unquestioned authority that many murders, *quasi* judicial and others, occurred in the war prisons. There were those among the strange heterogeneous elements congregated within who were versed in all the methods of secret poisoning, and the culprit or victim was often despatched without fear of detection by the authorities. It is charitable to suppose that these extreme measures were only adopted to check crime and disorder, petty thefts, or turbulence and disorder calculated to destroy the peace and quiet of the whole body. Personal quarrels were fought out according to the code of the period. Duels frequently took place, and, although the use of knives or swords was positively forbidden, the ingenuity of the prisoners provided lethal weapons for the deadly combat. Splinters of hard wood sharpened to a point made excellent foils.

A hunger for liberty—common to all captives—constantly beset the war prisoners, and many made repeated bids for freedom. Breaking prison was so frequent that special legislation was required to check it. An Act of Parliament prescribed transportation as the punishment for all who assisted or connived at escapes. On the hulks a plan was adopted of making the members of a mess or squad responsible for the safe custody of all, and when one fled the rest were punished. Indignant protests were naturally raised against this barbarous regulation, which, however, was no worse than the French law which inflicted *travaux forces* at the galleys for a like offence—if offence it can be called. Still, escapes occurred, and some were of the

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most daring and ingenious character. Stories are still preserved at Dartmoor of the Frenchman who allowed himself to be bricked up by his comrades in the new wall of a house and broke through at night; of another who, when mending a cupboard in the doctor's quarters, purloined his uniform and walked off wearing cocked hat and sword. At the hulks, a prisoner hid himself in an empty water barrel and was lowered into the small boat that had brought off the casks; this man remained in his cramped quarters till the next night and then got quite away. After this all water barrels were closely inspected before removal.

The combined action of a number was often tried, working with infinite pains at a subterranean passage. There was a notable attempt of this kind at Dartmoor in 1812, when a tunnel was carried for a distance of forty yards under the foundation of the prison. It was five feet below the surface, four feet in diameter, and it had all but reached the outer wall when the plot was discovered. These determined miners had conquered every difficulty, and were often compelled to make wide detours to escape the great masses of stone they constantly encountered. They had no tools but wooden spades edged with tin, and cask hoops made into scrapers. One of their chief difficulties was the removal of the earth extracted. This had to be brought up into the room they occupied, whence it was carried in small quantities into the gardens and spread upon the beds. The same difficulty confronted another set of fugitives, this time Americans. They disposed of the soil by throwing it into the prison water drains, which were continually flooded by the heavy rains, and thus the earth was carried off into the outer ditch. This mine was a more gigantic enterprise than the first named. The total length to be driven was a hundred and ten feet, and the passage was to be considerably wider. As the work progressed, it was found that the immense pressure of confined air made it impossible for the workmen to remain underground for more than half an hour at a time, and, as the passage lengthened, it became absolutely necessary to open up airholes to the surface ground above, a work of extreme danger, as sentries patrolled the whole of the prison yard. The work appears to have been continued without interruption for forty nights, the fugitives laboring in spells of two hours each, and freedom was within easy reach when one of the number revealed the scheme to the au-

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thorities. As a preliminary to the work, the prisoners engaged had bound themselves by solemn oath to keep the secret under pain of death. But one man was base enough to betray his comrades, and, for his reward, obtained immediate release, with a passport to return home. The disappointed fugitives first realized that their scheme had failed when they were marched into the prison yard, and faced by a strong force of military, who were soon employed in filling up the excavation. In doing this, the officer commanding could not refrain from paying a high tribute of praise to men who, "under so many discouraging circumstances, had not only managed to keep their gigantic work a profound secret, but had, by their indomitable perseverance, carried out the work almost to completion. Such men," he declared, "were well worthy of their liberty." According to the writer, George Little, from whose "Life on the Ocean" I extract this story, and who was one of the prisoners concerned, increased rigor was their portion after the discovery of this attempt at escape. He also tells us that a solemn compact was entered into by many of his comrades to take the life of the informer, if they ever encountered him.

We have another light on these Dartmoor days afforded by the American writer, Andrews, who was for some time a prisoner in Dartmoor. He tells us that his compatriots by no means accepted their imprisonment with the same philosophy as the French and other Continental prisoners. They were refractory, full of bravado, and scarce a day passed, he says, without some dispute or strife between turnkeys or guards and the prisoners. The former, indeed, declared that four hundred Americans gave them more trouble than twenty thousand Frenchmen. It is obvious that their condition was almost intolerable; the prisons to which they were committed were very much overcrowded, and those among them of better stamp found themselves herded with the sweepings of the American seaports—"a perfect set of outlaws and desperadoes," George Little calls them—and many colored men. When a sea captain or officer entered one of these prisons and showed any disposition to keep aloof from the rest, he was certain to be mobbed and ill-used. Cases were known in which the strict disciplinarian on his own ship was tied up and flogged in the prison by some of his own crew.

A very unfortunate affair occurred at the end of the war,

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when it was known that peace between England and the United States had been signed at Ghent, and yet unpardonable delay followed in releasing the prisoners. The blame for this appears to have been chiefly due to the neglect of the American agent in London whose duty it was to provide the cartels. There was great effervescence among the prisoners—now Americans only, for the French had gone—and they hanged the agent, Beasley, in effigy. Then some mismanagement in distributing the bread allowance brought on a very serious and lamentable affray. The prisoners rose, broke open the first three gates of the prison, drove the sentries into the guard house, and were only checked by meeting the main garrison with bayonets at the charge. For the moment the disturbance subsided; troops and artillery were brought up from Plymouth in reinforcement. That evening it was discovered that the prisoners had attempted to pierce the wall that interposed between them and the court in which the reserve arms were stored. On this the alarm bell was rung, increased guards were placed upon the walls, and the prisoners crowded to the first gate, not, it is averred, with any intention of forcing it, but simply to ascertain what was going on. The pressure of numbers broke the iron chain that held the gate, and a great crowd pressed into the market square. This was interpreted as a combined attempt of the whole body to escape, and the Governor came up, seeking to induce the prisoners to return to their yard. They refused, holding their ground, taunting the troops, daring them to fire and pelting them with large stones. At last the temper of the troops gave way and they commenced to fire, some say without orders, and seven of the prisoners were killed and sixty, more or less, dangerously wounded. The coroner's inquest returned a verdict of justifiable homicide, but a mixed commission of English and Americans could only express their infinite sorrow at what had occurred.

Comparisons are odious, and there is nothing really to choose between the treatment accorded to war prisoners on the two sides of the Channel; all that the French and others suffered in British hands was fully repaid on the captives in France. The two principal French war prisons were Verdun and Bitche; both of them on the northeastern frontier, a couple of hundred miles from the seacoast. There were others, as at Metz, Sarrelouis, Valenciennes, and great numbers of officers were scattered

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throughout France on parole. Verdun was the most aristocratic receptacle, filled chiefly with officers of both services and a large number of *détenus*, as the non-combatants, who happened to be in France at the declaration of war and who were arrested by Napoleon, were called. Many of these *détenus* were persons of rank and fortune. The Marquis and Marchioness of Tweeddale were among the number, which included a certain Dr. Jackson who, before settling in practice on the English coast, had taken a run over to Paris and was caught by the order to detain all Englishmen. As these *détenus* had often the control of considerable means, they were subjected to innumerable extortions by the commandant and his officers, who also encouraged gambling houses and other haunts of vice for their own profit, although nominally for the amusement of the prisoners. Drunkenness, gambling and debauchery were the order of the day. Many took to drink in the hopelessness of release; all who had the means or could raise money gambled at the *Café Thiery*, where there were *rouge et noir* and roulette tables, paying large taxes to the commandant. The man who held this post for years was a certain General Wirion, of the Gendarmerie, who long wielded despotic and baleful authority at Verdun. He was served by an army of spies and secret police, who made life almost intolerable to the prisoners. Wirion, by his exactions, amassed a great fortune; everyone was taxed, the smallest privileges had to be paid for. To miss the *appel* or sign the books at home, to obtain a passport to live outside the town, permissions to ride out in carriages or on horseback, to hold races—everything was taxed. The prisoners had to pay for alleged dilapidations to prison buildings, to defray expenses of recapture after an unsuccessful attempt at escape. There was considerable profit on the exchange between the franc, in which the allowances and drafts were paid, and the *livre tournois*, which was the circulating medium. Wirion was eventually called to account for his reprehensible practices. The repeated complaints of his turpitude, made by his indignant charges, at last reached the ear of the French War Minister. Clarke, Duc de Feltre, had succeeded Berthier, who had been Wirion's friend. Nothing could save Wirion. He was summoned to Paris to give an account of himself; Bernadotte pleaded for him, and Napoleon expressed his willingness to allow the accused to clear himself before a court martial; but he could

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not face the music, and he adopted the advice given him by General Clarke, who had said: "If there is any truth in this accusation, you had better shoot yourself." Whereupon Wirion dressed himself in full uniform and blew his brains out in the Bois de Boulogne. His two *aides de camp* were dismissed. Courcelles, who succeeded Wirion, was no improvement. He is described by one of his own officers as ignorant, wicked, miserly and inhuman, and he was eventually superseded in his command and cashiered from the service. Other officials came to a bad end. There were more suicides, and two men, the lieutenant who governed Sarrelouis and the colonel at Montmidi, were condemned to the galleys. It is but fair to add that, after these exposures, the prison was put under Colonel Baron de Beauchêne, an upright, honorable officer, who introduced many reforms, and governed with humanity and justice.

Despite the extortions practiced, the freedom of those who lived in the town was ease and comfort compared to imprisonment in the citadel of Verdun. Here the prisoners occupied part of an old monastery with very limited accommodation; they were greatly overcrowded, sleeping two in a bed in foul and stifling atmosphere. "What with the shouting, the singing, the bewailing, the smoke of the lamps, the smoke of cigars and the consequent stench of the place, it was rendered almost unbearable," says one who passed through the ordeal. But there was a worse den in the citadel, the Tour d'Angoulême, or Round Tower, a circular building with only two rooms, one above the other. This was used for recaptured fugitives, who lay there on straw, heavily ironed, devoured by vermin, preparatory generally to their transfer to Bitche.

This fortress, which was known among the war prisoners as the "Place of Tears," lies some thirty miles north of Strasburg and stands on a solitary rock a thousand feet high. In the centre of the fort were two large barracks, a small part of which was appropriated to the prisoners. But a great number were located underground, in vaulted rooms known as the *grand* and *petit souterrains*. These were damp, cold, cavernous lodgings. The rocky wall at the head of the great bed was in winter time a sheet of ice, the moisture which oozed through having frozen hard. In summer they were hot, ill-ventilated and offensive. Here were collected the sweepings of all the war prisons, "the

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dissolute, the abandoned, the profligate, the drunken, the very refuse of the other depôts." There was no distinction of persons; officers and privates, masters and seamen, lived side by side. In its early years, the place must have been a perfect pandemonium. Despair and misery had driven most of the inmates wild; they were like untamable animals, a terror to their guards and a perpetual plague to one another. Once, when a favorite comrade was carried off to punishment, the whole number turned out, armed with great staves torn up from the bed boards, and they would have overpowered the guards had not the commandant released the man. None of the gendarmes dared enter the *souterrain* at night, and even the veteran guards who garrisoned the fort hesitated to come in contact with them.

Both at Verdun and at Bitche, indeed everywhere, escapes were attempted and often successfully achieved. They had all a strong family likeness—the boring through of walls, iron doors undermined, the descent into deep ditches by cords cunningly prepared from bedding and clothes. In more than one case a tunnel was driven from the lowest *souterrain* into the ditch. Once, a prisoner escaped by hiding at the bottom of a well three hundred feet deep, and he was not detected because of the neglect of the gendarmes to draw up the bucket. A surgeon among the prisoners having a fluent knowledge of French, had ingratiated himself with the officers of the regiment in garrison, and they generously provided him with a complete uniform and a military passport, armed with which he made for the coast. Unhappily, the extreme watchfulness of the coast guard prevented him from obtaining a passage across the Channel, and he was compelled to return to prison. The penalty would have been the galleys had he been taken in this disguise with a false passport. The frequency of escape had led to very severe measures, and it was announced in the war prisons that all who broke their parole and attempted to escape should, if recaptured, be tried by a military tribunal and shot.

ARTHUR GRIFFITHS.

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RUSSIA AS A WORLD POWER

BY CHARLES A. CONANT.

WHEN the Czar Nicholas II. recently determined to propose to Europe the modification of great armaments in the interest of the peace of the world, he acted from the far-sighted motives of public policy which have governed the economic measures of the Russian Government for many years. The leaders of Russian political thought evidently reached the conclusion that Russia only needed relief from the heavy burden of taxation necessary for maintaining her great armies, to place her in the front rank among the industrial nations of the world. They have been for many years directing the steps of the empire in this direction, with a singleness of purpose and a continuity of policy which are rendered possible by the absolute form of the Russian Government. To the average American the Russian Empire probably still represents a half civilized state, peopled by the oppressed victims of a military tyranny in the older portions, and given up to barbarian hordes and army outposts in the provinces east of the Ural Mountains. Whatever warrant for this conception may have existed in the past, it is rapidly ceasing to be true. Russia is organizing the machinery of her economic system in a manner to make her the early and dangerous rival of the great industrial nations. M. de Witte, the Minister of Finance, furnishes the key of the present policy of the Russian Government in the declarations of his last annual report to the Czar:

"The principal support of the economic and financial prosperity of Russia consists in the traditional policy, pacific and just, of her sovereigns. The principles bequeathed by the late Emperor Alexander III. and the sincere spirit of peace which animates your Majesty are guarantees that, in the future, as in the past, the foreign policy of Russia will be exempt from every aggressive disposition towards other states, with the view to the promotion of the well-being of our country, and that from this source our economic and financial system shall be menaced with no danger."

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Whatever may be thought of the sincerity and truthfulness of this analysis of the foreign policy of Russia, the statement of the end to be sought—the care of the economic future of the country—is truthful and significant. M. Arthur Raffalovich, the accomplished financial agent of the Russian Government in Paris, in his valuable annual volume on the financial development of the world, *Le Marché Financier*, declares that the economic life of Russia has become the centre around which converges all the care of the government, the interest of the public, and the attention of foreign observers. "The country develops and concentrates its forces, and thus is able to accomplish the numerous reforms in other domains of Russian life, of which the need has long been felt." This is a correct diagnosis of existing conditions in Russia. The whole energy of the state is being bent to the creation of a nation capable of competing in the field of manufactures, industry, commerce and credit with the great Western nations and with the United States. Remarkable progress has been made toward this achievement. The present economic system of Russia is eminently paternal, but finds excuse in the comparative infancy of the nation in matters relating to commerce and credit. That this system has its evils and leads the promoters of new projects "to consider the treasury of the state as an inexhaustible reservoir" for aiding their plans, is admitted by M. de Witte; but it seems for the moment to be the most efficient policy for equipping Russia with the means for entering upon the competition for political and commercial supremacy with the other industrial nations of the world.

The absence of parliamentary institutions, in spite of its latent evils, gives force, directness and promptness to every measure decided upon for the development of the country. In a democratic state, it is necessary to convince the majority of the people before any great reform can be accomplished. In Russia it is necessary to convince only the Czar and the Council of Ministers, which is made up of men trained for statecraft and undeterred from following their economic convictions by the exigencies of party politics. The leading statesmen of Russia are educated in the best schools of economics of France and Germany, they usually serve the state for many years when their services are efficient, and their combined experience and wisdom is applied to the important problems with which the government has had to

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deal in raising Russia from the condition of feudal times to a rank among civilized powers. There have been, within the limits of a little more than a generation, two striking illustrations in Russia of the difference between the power and efficiency of an absolute government in dealing with serious national problems, and a government where it is necessary to convince a majority of the people before action can be taken.

These two illustrations of the directness of the Russian government in proceeding toward an object, determined after consideration to be a desirable one, are of special interest to Americans, because they run parallel with two of their own great problems of the same period—the abolition of slavery and the restoration of order to the currency system. Russia liberated the serfs by a ukase of the Czar, at almost the very moment when the States of the American Union were plunging into civil war upon the same subject. She resumed specie payments upon the gold standard in 1897, after a series of well-considered steps which have made her currency system one of the most secure in the world. Each of these measures was carried out within a few years after the plans were matured, without bloodshed or popular upheaval, or paralysis of industry and credit. While the final steps were being taken for the liberation of the serfs, upon a basis which compensated the owners and set the liberated class at once upon the footing of responsible property-owning subjects, the great Republic of the West was fighting a costly civil war, whose result was the liberation of the servile race, but without providing homes or a future for its members. A generation later, when the Russian Minister of Finance was calmly proceeding by successive steps to plant the credit of Russia upon an unassailable basis, the American Union was again torn with dissensions, banks were failing and industry was paralyzed, and Congress was sitting in extra session to undo the financial blunders to which the clamor of special interests and political cowardice had led a few years before.

The liberation of the serfs was conceived by Alexander II. soon after he succeeded to the power of Nicholas I. When the time came for action, in November, 1857, he issued a decree authorizing the Lithuanian nobles to form committees "to improve the condition of the serfs." He calmly assumed, in spite of some opposition on the part of the land-holders, that they were

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favorable to reform, and followed up his policy in Lithuania by giving similar authority to the nobles in other provinces. A declaration in 1858 defined the principles of his plan, by which the peasants were to buy their houses and gardens, with land in addition sufficient to making a living, and were to be aided in the purchase by advances from the government to the land holders. A ukase of February 19, 1861—the Russian proclamation of emancipation—crowned the preliminary work and declared the abolition of serfdom.

The details of the financial operations by which this great reform was accomplished were set forth in a recent number of that invaluable mine of Russian statistics, the *Bulletin Russe de Statistique Financière et de Legislation.* The indemnity allotted to land-holders on account of the serfs from 1862 to 1891 reached the sum of 892,139,163 rubles ($450,000,000). Of this amount the government retained in various years 316,763,718 rubles to offset mortgage loans made to the land-holders, and issued the remainder in 5 and 5½ per cent. interest-bearing securities. The number of lots of land awarded to the serfs was 9,239,752 and the principal charged against them over a period of thirty years was 886,340,871 rubles. The aggregate amounts thus charged, including interest, from 1862 to 1891, were 1,040,167,863 rubles, and the amounts collected over the same period were 1,000,307,140 rubles ($520,000,000). The land was taken in many cases by associations of the serfs, which afforded a guarantee for payment, and left the question of individual distribution to local assemblies. This great work was not without incidental blunders and complaints, but it was accomplished without shock to the economic system, and has left the former serfs in no such position of irresponsible isolation as the emancipated race in the United States. The relative cost of the liberation of the serfs in Russia and the war for the preservation of the Union in the United States stands in the relation of about $500,000,000 in the case of Russia, to $6,844,571,431 in the case of the United States.* Professor Seignobos, in his recent "Political History of Contemporary Europe," after referring to the difficulties growing out of the small lots awarded to the serfs and the high valuation of the land in certain cases, says:

*This is the computation of Prof. Albert S. Bolles, "(Financial History of the United States," III., 244), including $437,744,192 for army pensions to June 30, 1879.

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"The emancipation of the serfs transformed Russian society. In giving to the mass of the population legal liberty and the administration of their local (communal) affairs, it has made of Russia a modern nation. It prepared her to deliver herself from habits of arbitrariness, servility and laziness produced by the long practice of servitude, and assured her the legal conditions of private enterprise and regular public administration. Economic progress was marked, after the death of Alexander II., by the increase in the area of cultivated lands, in the price of land, in the yield of the taxes, in the value of exports, and by the improvement in the peasant's manner of life."

The same energy and directness of action marked the measures taken to establish the gold standard which marked the plan for the liberation of the serfs. The accumulation of a gold reserve went on for many years under the management of far-sighted and highly educated ministers of finance, but the actual resumption of specie payments was delayed, first by the Crimean War and then by the war with Turkey in 1877. When the gold reserve of the Treasury and the Imperial Bank had risen on January 1, 1895, to about $500,000,000, M. de Witte, the Minister of Finance, laid before the Czar a carefully matured plan for giving a fixed value to the circulating paper money and gradually reaching the free interchange of gold and paper at the bank. From the beginning of 1895 to the beginning of 1897, a period of two years, successive decrees were issued which gradually accomplished all that the Ministry had planned, and placed the Russian Empire, without disturbance to vested rights or business interests, among the gold standard nations of the world.

A national three per cent. gold loan was issued for reimbursing to the Imperial Bank a part of its advances to the Treasury; gold contracts were authorized; special gold accounts were received at the bank and gold check books issued; gold certificates were issued and made legal tender for public dues; 693,000,000 rubles ($350,000,000) in gold was paid out during 1896 by the Treasury and the bank; a fixed exchange value was given to the paper ruble; and gold coins were provided for at the new rate of exchange. Gold is now freely paid for notes at the bank, and the gradual contraction of the note circulation, with the increase of the gold funds to $600,000,000, has increased the gold above the amount of the outstanding paper and given the notes of the Bank of Russia the character of gold certificates. The effect of these measures was discussed intelligently by the leading financial journals and aroused some differences of opinion, but there was

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no attempt to inflame the prejudice of the masses against the policy of the government; there were no windy demagogues stumping the provinces declaring that "the gold standard is a conspiracy against the human race." Short shrift might have been made of such orators by the absolute government of Russia, but intelligent discussion by responsible economic students was cordially welcomed and carefully weighed in the councils of the Czar.

The part which Russia has been playing since the early eighties as a grain-producing country is well known on the world's exchanges, and will be passed over here for a few references to her growth in more highly organized industries. It is worth noting, in passing, that in the production of petroleum, Russia has become within a few years a serious competitor of the United States. The production of 1881 was 663,001 metric tons against a production in the United States of 4,612,600 such tons, the part of the United States in the production of the two countries being 874 in 1,000. The production of Russia increased to 3,183,418 tons in 1888, while that of the United States remained substantially unchanged. Both countries have advanced with rapid strides during the succeeding ten years, but Russia is now practically abreast of this country in the production of the world's supply. The latest complete Russian figures were those of 1895, when the production of the United States was 8,835,181 metric tons and of Russia 7,056,537 tons, but the single district of Baku in 1896 and 1897 almost equalled the entire Russian product of 1895 and greatly exceeded that of 1894.

The most striking evidence of the entry of Russia into the list of competing capitalistic countries is afforded by the incorporation of stock companies in recent years. A recent number of the *Bulletin Russe de Statistique* brought the list of mining, metal working, naphtha and salt companies down to June 14, 1898. The whole number of such corporations constituted under Russian laws was 205, with an aggregate capital of a little more than 500,000,000 rubles ($260,000,000). Of this number 125 companies have been constituted since January 1, 1895, and these include nearly all of the companies with large capitals, ranging from 18,000,000 rubles downward. This is only a part of the list of Russian stock companies. Banking and credit societies are in operation to the number of 548, with a subscribed capital of 285,211,356 rubles, exclusive of the Imperial Bank and its many

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branches. There are 293 corporations devoted to commerce and public works, life insurance, navigation, gas and electricity, with a subscribed capital of 177,124,144 rubles. There are also 536 industrial corporations, with a capital of 596,550,501 rubles. These 1,377 corporations, with an aggregate capital of 1,058,886,301 rubles ($530,000,000) include all those paying the tax of five per cent. upon net profits, and the net profits reported averaged 13.06 per cent., running as high as 16.9 per cent. in the case of the discount banks, 36.8 per cent. in the case of the food societies, and to even higher figures in the case of certain special industries.

A statement of all the business enterprises subject to the patent tax (or business license) in 1895 shows transactions amounting to 8,739,087,700 rubles ($4,500,000,000) for wholesale enterprises, with profits of 316,547,450 rubles ($160,000,000), and transactions of 955,051,900 rubles ($490,000,000), for retail enterprises subject to the tax, with profits of 102,212,680 rubles ($53,000,000). The figures of the total transactions or receipts of various companies include about $1,700,000,000 on account of the money paid into banks in the course of current transactions, but even if this amount is deducted, a total industrial activity, important enough to be subject to tax, amounting to $3,250,000,000, represents no small volume of business for a country whose economic development is so recent as that of Russia. All these figures, moreover, are taken from the tax returns for 1895. The growth of economic activity since that time has enormously increased the number of corporations, the volume of transactions, and the collections on account of the government. The revenue collected from the patent and additional taxes increased from 28,934,339 rubles ($15,000,000) in 1887 to 42,760,721 rubles in 1895 and 46,577,000 rubles ($24,000,000) in 1897.

The development of Russia as a manufacturing and capitalistic country is raising there the same industrial questions which have arisen in Great Britain, France, Belgium, Germany, and the United States. The Russian labor laws did not regulate until recently any work except that of children, youths and women, and the relation between the laborer and his employer. A step in the path of other industrial countries was taken by the law of June 2, 1897, which fixed definite hours of labor for adult males. The law was desired as much by large manufacturers, in order to meet

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the competition of establishments having an excessively long day, as in response to the demands of the laboring men themselves. The working day is still long, but the system of limitation, having been put in operation, is likely to be continued, with the increased productive power of the laborer and the increase of his earnings, until the Russian factory hand stands upon a level with his fellow in Western Europe and America. The law of June 2 extended the regulations regarding the inspection of labor and contracts with laborers to the whole of European Russia and Poland. The numbers of inspectors of labor was increased from 151 to 171, and the labor laws were extended to all establishments which employ sixteen or more skilled laborers.

Technical education is finding a large place in the policy of the Russian government. There were twelve higher technical schools in the country in 1896, containing 5,916 pupils. Schools of commerce were opened in 1897 under a law of April 15, 1896, at Kiew, Odessa, Varsovia, Moscow, Kharkow, Nijni-Novgorod, St. Petersburg and Lodz. A school of navigation has just been opened at Odessa, which is recommended by the United States Consul for imitation in this country. Professional primary schools were opened in many other towns, and agricultural schools and schools of horticulture in the farming provinces of both European Russia and Siberia. Projects of law were recently under consideration by the Department of Finance for the revision of existing legislation on stock companies, the creation of corporations for popular readings and libraries, a new code for commercial paper, the regulation of weights and measures, the reduction of duties upon agricultural machinery and manure, and a new classification of the *octroi* charges in cities. The tariff rates on agricultural machinery were reduced in 1893 and 1894, and the value of the imports of such articles rose from 2,644,230 rubles in 1888 to 5,286,954 rubles in 1896.

One of the best tests of the economic progress of a nation is the extent and flexibility of its system of credit. The deposit and check system has not attained the development in Russia which it has attained in some other commercial countries, but is gaining ground at a remarkable rate. The discounts at the Imperial Bank were 132,578,530 rubles on October 23, 1898, exclusive of the accounts at the branches, and the deposit accounts included 61,918,009 rubles payable on demand to individuals and 84,531,307

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rubles to the account of other bankers, credit societies, and industrial and commercial corporations. Private commercial banks are rapidly obtaining a footing in Russia. There were forty such institutions in 1897, of which nine were at St. Petersburg, with a capital and surplus of 119,000,000 rubles; four at Moscow, with a capital of 36,300,000 rubles; and twenty-seven in the provinces, with capital and surplus of 86,300,000 rubles. The deposits in these forty banks on October 10, 1897, were 476,800,000 rubles ($240,000,000), an increase of 86,700,000 rubles within a year. The deposits at St. Petersburg amounted to 219,000,000 rubles and at Moscow to 117,600,000 rubles.

The statutes of the Bank of Russia were subjected to a complete revision in 1894, and the new statutes, promulgated on June 24, 1894, declared the purpose of the bank to be "to facilitate, by means of credit for short terms, the movement of commerce and to promote the success of national industry and agricultural production." Besides the usual provisions for loans upon commercial paper, the bank was authorized within carefully guarded limits to make advances on agricultural products and industrial material. The maximum loan for industrial enterprises is 500,000 rubles and for a retail merchant 600 rubles. The maximum term for loans for material is three years, but periodical payments are required when the term exceeds six months. The bank is authorized to accept as security for loans to small farmers, peasants and mechanics, the guarantee of the provincial assemblies, mutual credit societies, and individuals chosen from among the inhabitants of the community who are satisfactory to the bank. The government made advances to the peasants of some 90,000,000 rubles during the famine of 1892 and the customs war with Germany in 1893, which were repaid only in installments over a considerable period of time.

Popular banks for assisting peasants and mechanics of small means are rapidly spreading over Russia. The beginning of 1897 found 720 of these associations in operation, of which the 608 making complete returns counted 218,100 members with deposits of 9,200,000 rubles. A congress was held at Moscow in March last for the study of questions relating to the extension of small credits, and to consider a plan for a central bank for supporting the rural banks, as in Germany and Austria. The growth of the Russian savings deposits has been phenomenal in recent years.

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The balances due depositors were only 9,054,648 rubles ($4,600,000) in 1880. This rose in 1890 to 147,042,901 rubles and in 1895 to 377,165,352 rubles. The latest available report, giving the deposits at the end of August, 1898, shows balances of 508,512,000 rubles ($260,000,000) distributed among 2,675,536 separate accounts. An analysis of the accounts was published in 1898 which showed that on January 1, 1897, the farming population had on deposit 66,437,000 rubles; mechanics in the cities, 33,288,000 rubles; factory employees, 12,076,000 rubles; merchants, 34,588,000 rubles; and domestics 29,829,000 rubles. An interesting indication of the improvement in the conditions of living, such as was noted in England earlier in the century, is the increased consumption of sugar. The taxes paid upon this product were only 23,161,725 rubles in 1887; they were 55,476,000 rubles in 1897.

The Russian railway system is also attaining a development which is putting the country abreast of the great transportation systems of the world. A comparison of the mileage in 1895 showed Russia, not including Finland and Siberia, in the possession of 36,585 kilometers of line, while France had 36,337 kilometers. The figures on January 1, 1898, gave Russia, including Siberia, 40,300 kilometers. With the addition of the Trans-Siberian line and the construction of the past few years, Russia is far ahead of France in actual mileage, although still below her in length of line *per capita*. Railway earnings have steadily increased with the development of commerce and the extension of connecting lines. The gross earnings in 1881 were only 199,979,356 rubles ($103,000,000) and the net earnings 55,538,549 rubles ($28,000,000). The gross earnings of 1896 were 426,322,767 rubles ($215,000,000) and the net earnings were 178,077,035 rubles ($90,000,000). These figures do not approach those of the United States, where the gross earnings in 1896 were $1,125,632,025 upon 180,891 miles of operated lines, and the net earnings were $332,333,756; but American railroad men may well regard with envy the percentage of net earnings in Russia, which is nearly 45 per cent. of gross income, in comparison with the less than 30 per cent. of such earnings on American lines. The number of persons employed on the Russian lines in 1895 was 343,996, and their combined earnings were 109,795,743 rubles ($55,000,000). M. Raffalovich declares that the existing lines

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do not meet the constantly growing needs of Russian commerce. The transportation of merchandise over the lines of the West has especially increased since the opening of the Trans-Siberian. The four existing ports are hardly capable of handling the commerce of the Baltic, and it has frequently happened that grain transports have been stopped on the way to these ports because proper provision could not be made for discharging and receiving their cargoes.

The most important achievement of Russian railway engineering—the result at the same time of enlightened political foresight—is the Trans-Siberian Railway. This long thread of steel, connecting European Russia with the Pacific, was a dream of Russian statesmen as far back as 1850. It was not until the opening of the Ural line in 1880, which joined Perm in European Russia with Tiumen, on the Tobol, which flows into the Irtish, that a long practical step was taken towards binding the empire together by a single railway system. Several parts of the line remain to be completed in Russian territory, but the most important uncompleted part is the Manchurian Railway, across the northern province of China. M. Pierre Leroy-Beaulieu, who recently traversed the line, and describes his observations in the *Revue des Deux Mondes* for August 15, 1898, expresses the opinion that it will not be completed for ten years. The contract has already been signed, however, for obtaining the money from the Russo-Chinese Bank, and the control of the road, although under a Chinese president, is substantially under the Russian Minister of Finance.

The entire line, from the foot of the Ural to Vladivostock on the Pacific Ocean, will have a length of 6,613 kilometers, or about 4,200 miles. It will be by far the shortest route from Europe to the Orient. The time from London to Hongkong is now twenty-five days by the Suez Canal and thirty-three days by way of the Canadian Pacific Railway. It will be reduced to twenty days by the Trans-Siberian. The advantage in the case of other European places and Asiatic ports farther north will be much greater. The trip from Paris to Pekin can be made in sixteen days, where it now requires thirty-four days from France or England to Yokohama by the Suez Canal and twenty-five days by way of Canada. The passenger charges, moreover, are computed by M. Leroy-Beaulieu, including sleeping cars and meals, at about 800 francs ($160) from Paris to Northern China, as compared with charges

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of 1,800 francs ($360) by the present steamer routes. The charges will be less favorable upon bulky freight from Western Europe, but for the interior of Russia the opening of the railway means that the resources of the East are at her disposal, and that she can deliver in the East her own products at a great advantage over her Western rivals. Business men throughout Europe will benefit by the mail service over the new railway, which will deliver letters in sixteen or eighteen days, in place of the month or five weeks now required. But the Russian merchants will enjoy the advantage of quicker communication and nearness to their new markets. The opening of new routes of communication has often involved the rise and fall of nations. It will not be contrary to historic precedents if, in the course of years, the development of the great trans-continental route which binds European Russia to Siberia should shift the centres of trade in the East, destroy the importance of many existing ports in China, and create new commercial centres in the heart of Asia, around which will gather the civilization of coming generations.

It is not surprising that Russian statesmen, with the vista of the economic empire of the future within their grasp, hampered by no necessity for pandering to the clamor of the moment in order to keep themselves in office, should have determined that Russia would gain enormously in the race with other industrial nations by devoting her whole energies to economic development. Hence the proposition of the Czar, that the world lay aside its arms and give its people an opportunity to devote themselves to industrial pursuits, looks directly to the future dominance of Russia in the commerce and finance of the world. It would be useless for Russia to attempt to fight such a power as Great Britain in the East until the completion of the Trans-Siberian Railway. She has accomplished wonderful results by the firmness and audacity of her diplomacy in China. When the railway is completed, with the economic development which will come in another period of ten years, she will be able to cope on land, if not on the ocean, with any force which can be brought against her. She will enjoy the advantage of occupying the inner line, from which she can strike at her enemies on the European or Asiatic flank with the force and directness of Napoleon when he was able to carry out his favorite policy of separating and conquering hostile armies.

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Ten years of such economic development as Russia has witnessed in the ten years just passed will make her enormously stronger than she is to-day; thirty years will make her almost irresistible. The capacity for economic growth under modern conditions, when a nation has once obtained a fair start, is illustrated by the wonderful progress of the German Empire since 1870. Germany, from being a comparatively poor country, has become one of the great capitalistic nations of the world, threatening Great Britain in her own markets for manufactured goods and competing with British capital in the construction of railways and the creation of banks in South America, Africa and Asia. The estimated wealth of Germany in negotiable securities, according to calculations made in 1895 by the International Statistical Society, was $18,000,000,000, and she stood second among the nations of Europe. Russia then ranked fourth, with $5,000,000,000 of negotiable wealth, but this amount has greatly increased within three years. With a government controlled by the single purpose of promoting national advancement, with the best economic knowledge of all peoples at her command, with almost unlimited natural resources, and with an equipment of producing plant and saved capital sufficient to permit constantly accelerating progress, Russia promises in another generation to be the great competitor of the Anglo-Saxon race for the commercial and military supremacy of the world.

CHARLES A. CONANT.

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AMERICA AND THE WHEAT PROBLEM.

BY JOHN HYDE, STATISTICIAN OF THE U. S. DEPARTMENT OF AGRICULTURE AND EDITOR OF "THE NATIONAL GEOGRAPHIC MAGAZINE."

NOT since Tyndall shocked the religious sentiment of almost the entire English-speaking world, by proposing at the Belfast meeting in 1874 that certain wards of a hospital should be set apart for a scientific test of the efficacy of prayer, has the annual address of a president of the British Association for the Advancement of Science excited so general an interest, or provoked so much unfavorable criticism, as have the recent utterances of Sir William Crookes on the subject of an approaching scarcity in the supply of wheat.

In the United States, the warning—for such, rather than as a prediction, it should be considered—of the distinguished chemist has been received with a chorus of deprecation in which there was scarcely a discordant voice, the idea that the wheat-producing capabilities of this country are not practically illimitable being generally scouted as preposterous. Much of the criticism, however, was founded upon a telegraphic report, which, however creditable to newspaper enterprise, was not entirely accurate; and now that the address is available in complete form,* it may be worth our while to examine it with some degree of care, with a view to determining its actual bearing upon prospective conditions in this country.

The field covered by Sir William's argument is of immense extent. It is practically the entire wheat-producing region of the world, and the potentiality of every considerable portion of it is discussed in more or less detail and, in the main, conservatively. To follow the explorer, however, from Europe to Siberia, from

* British Association for the Advancement of Science. Bristol, 1898. Address by Sir William Crookes, F. R. S., V. P. C. S., President. London, 1898.

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Canada to Australia, from South America to Africa, would be less useful, because less conclusive, than would be a consideration of the conditions, actual and prospective, in the United States, the country which, as he himself says, has for the last thirty years been the dominant factor in the world's supply. Sir William's references to the United States constitute less than one-twentieth part of his discussion of the wheat-supply problem, and are mainly embodied in the following statements:

"Practically there remains no uncultivated prairie land in the United States suitable for wheat growing. The virgin land has been rapidly absorbed, until at present there is no land left for wheat without reducing the area for maize, hay and other necessary crops.

"It is almost certain that within a generation the ever-increasing population of the United States will consume all the wheat grown within its borders, and will be driven to import, and, like ourselves, will scramble for a lion's share of the wheat crop of the world."

What it is sought to establish is that, not in the immediate future, but when almost a third of the coming century—practically a generation—shall have passed away, the wheat supply of the world, including the United States, will fall so far short of the demand as to constitute general scarcity, unless starvation be averted through the laboratory. This is Sir William Crookes' contention, and it is the object of the present article to consider, from a standpoint somewhat different from that either of the English chemist or his critics, what are likely to be the prevailing agricultural conditions in the United States a generation hence.

What were the conditions a generation ago? The country then had a population of about 34,000,000; now it has one of about 75,000,000, exclusive of the islands to be brought under its dominion as a result of the war with Spain. One hundred and ninety-one million bushels was the largest wheat crop on record; the average of the last three years has fallen but little, if any, short of 540,000,000 bushels. In the fiscal year 1865-66 the total exports of wheat, including wheat flour, were less than 16,500,000 bushels; last year they exceeded 217,000,000 bushels. In 1865 the corn crop was only 704,000,000 bushels, with 828,000,000 bushels as the high water-mark of previous production; during the last three years the crop has averaged over 2,000,000,000 bushels.

Were there really no limit to the agricultural potentiality of the United States, these enormous figures might furnish some sort of index to the probable developments of the future. But we are liable to be led seriously astray if we assume for the thirty-three

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years to come an increase proportionate to that of the thirty-three years last past. That the population of the United States in 1931, exclusive of colonial possessions or dependencies, will be at least 130,000,000 is as certain as any future event can be, but it is not nearly so easy a matter to forecast the agricultural production of that period; and yet the question that lies at the very foundation of any just criticism of Sir William Crookes' address is, what contribution, if any, our farmers will be able to make to the wheat supply of other countries, when the time comes that provision has to be made for the varied requirements of a home population more than twice as large as that at the last federal census.

Those requirements will include a wheat crop of 700,000,000 bushels, without a bushel for export; an oat crop of 1,250,000,000 bushels; a corn crop of 3,450,000,000 bushels, and a hay crop of 100,000,000 tons, all for domestic consumption; with cotton and wool, fruit and vegetables, dairy and poultry products, meats and innumerable minor commodities in corresponding proportions. The area necessary to the production of the three principal cereals alone will be over 15 per cent. greater than the enormous total acreage devoted in 1898 to grain, cotton and hay, while the mere addition of the two last mentioned products and of the minor cereals will call for an acreage exceeding the total area of improved land in farms at the present time.

But what, it may be asked, is to prevent either (1.) any necessary extension of the areas in farms, or (2.) the bringing under cultivation of that large residue of unimproved land which amounted at the last federal census to no less than 42.6 per cent. of the total farm area?

The great fact that underlies the enormous productive capacity of the United States to-day is, of course, the transfer from government ownership to individual proprietors, within a single generation, of a body of land hundreds of millions of acres in extent and for the most part of extraordinary fertility. But, amazing as has been the increase in the farm area of the country during the last thirty years, it has not been sufficient even to keep pace with the growth of population. The addition of 128,300,000 acres, or 31.48 per cent., to the area in farms between 1870 and 1880 only increased the area *per capita* of population from 10.57 to 10.69 acres. By 1890 the area, notwithstanding a further addition of

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87,100,000 acres, or 16.25 per cent., amounted to only 9.95 acres *per capita*, and the census of 1900 will almost certainly find it under 9 acres.

That for general agricultural purposes the public domain is practically exhausted, and that consequently there can be no further considerable addition to the farm area of the country, is too well-established a fact to be the subject of controversy. Of the entire area undisposed of, 72.7 per cent. is in states wholly within the arid region, and all but a small part of the remainder is desert, mountain, or at best suitable only for grazing purposes.* In Kansas, out of 1,061,000 acres undisposed of, only 116,000 acres are east of the 100th meridian, and these are described as broken and for the most part sandy. In Nebraska 10,548,000 acres are still open to settlement, but not one acre in seven is in a region of sufficient rainfall for general agricultural purposes, and the best of the land is described by the General Land Office as fit only for grazing. In North Dakota the vacant land amounts to 20,575,000 acres, but on little more than one-tenth of this area could irrigation be dispensed with, even if the land were otherwise adapted to general farmin. In Oklahoma, the youngest of the territories and the one containing the largest addition to the farm area of the country that has been made within many years, of the 7,007,000 acres of government land still vacant, 3,250,000 acres lie between the 99th and 100th meridians and a like amount, making altogether 93 per cent. of the whole, west of the 100th. The vacant land in the Pacific states amounts to 91,843,000 acres; but of the 42,503,000 acres in California, 19,000,000 acres are "barren, irreclaimable wastes," 19,875,000 acres "desert and grazing," and 3,628,000 acres "woodland and forest;" the 35,898,000 acres in Oregon include 17,067,000 acres of "desert and grazing" and 18,831,000 acres of "woodland and forest," while the 13,443,000 acres in Washington comprise 3,847,000 acres of "desert and grazing" and 9,596,000 acres of "woodland and forest."

It should not be forgotten, in this connection, that it is no longer the policy of the American people or of its representatives

* The figures relative to the public lands and the possibilities of irrigation are taken from the Report of the Secretary of the Interior for the fiscal year ended June 30, 1898, pp. 15-16; the Annual Reports of the Commissioner of the General Land Office for the fiscal years ended June 30, 1897 and 1898, and The Public Lands and their Water Supply by Frederick Haynes Newell, Sixteenth Annual Report of the U. S. Geological Survey, 1894-95, Part II., pp. 463-533.

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in Congress to permit of the continued destruction of the national forests, without regard to the needs of the future. It should also be borne in mind that, according to the U. S. Geological Survey, the entire water supply of the Pacific states available for irrigation is only sufficient for some 23,000,000 additional acres, or about one acre in four of the unappropriated public lands in those states. In the entire arid region the available water supply, as similarly estimated by the U. S. Geological Survey, is only sufficient for the irrigation of 71,500,000 additional acres, or one acre in seven and one-half of the area undisposed of. Commenting upon the difficulties encountered by the individual farmer in reclaiming land from its desert condition, the Commissioner of the General Land Office, in his report for the fiscal year ended June 30, 1898, p. 72, calls attention to the fact that such reclamation amounts to "less than 125,000 acres annually, at which rate it would require nearly six hundred years to dispose of all the irrigable lands." Commissioner Hermann says further:

"In connection with these astounding figures, it should not be overlooked that much the greater part of the lands already disposed of are those bordering on small streams, where reclamation was accomplished principally through individual efforts.

"Nearly all of the waters of these smaller streams are now utilized, and the remaining lands depend for their reclamation upon the saving of all overflow waters, and the diverting of the waters of the larger streams, which can be done only by expensive construction. It is, therefore, but a fair presumption that the disposal of desert lands to individuals will annually decrease, unless Congress in its wisdom provides a means by which the annual overflow waters in the arid region may be saved and intelligently dispensed."

The extent to which the total farm area of the country can be increased by the reclamation of desert lands will therefore be seen to be very small, if not absolutely insignificant; indeed, it is a question whether it will be sufficient even to counterbalance those constant encroachments upon the productive area which arise from the growth of cities,* the building of railroads, and the general development of commerce and of non-agricultural industry.†

* At the census of 1890, of the counties containing the 28 most populous cities in the country, 20 had a smaller number of farms, and 23 a smaller farm area and smaller area of improved land in farms than they had in 1880. Of the exceptions, all but three were due to the increase in the number and area of market gardens, which, for census purposes, were considered as farms.

† It is difficult to estimate the amount of land annually withdrawn from the farm area of the country, but the statistics of improved and unimproved land at the Eleventh Census show incidentally that at least 4,500,000 acres of the former and 6,500,000 acres of the latter passed out of farms during the preceding ten years, an average of more than one million acres per annum.

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But what of that vast body of unimproved land already in farms, which amounted at the last census to 265,600,000 acres, or more than two-fifths of the total farm area of the country? Where is it situated, and of what does it consist?

If its distribution is not uniform with that of the area improved, it is no less general. No section of the country, large or small, has been too long settled, none has a too easily cultivable soil, none has too good a market in proximity to it, to be exempt from making a relatively substantial contribution to the unimproved acreage in farms. There was not one of the 2,783 counties at the Eleventh Census that failed to contribute to the grand total, whether situated in the richest part of the Mississippi Valley or embracing some great center of population.*

Between the international line and the 37th parallel (which runs through Hampton Roads, Va., Cairo, Ill., across the southern part of Missouri, and forms the northern boundary of Indian Territory and Oklahoma) and east of the 100th meridian, the census of 1890 found about 115,000,000 acres of unimproved land in farms, ranging from 15.8 per cent. of the total farm area in Illinois to 55.9 per cent. of that in West Virginia. South of the 37th parallel and east of the 100th meridian there were about 118,000,000 acres, ranging from 53.6 per cent. of the total farm area in Tennessee to 68.8 per cent. of that in Florida. Within the region that is absolutely arid were about 27,000,000 acres, ranging from 53.4 per cent. of the total farm area in Montana to 92 per cent. of that in Arizona, and in those portions of the Pacific states in which irrigation is unnecessary were found the remaining 5,500,000 acres.

The chief factor in determining the ratio of unimproved land in farms to total farm area is not the cost of the land—not the facility with which it has been acquired—but the relative facility of cultivation. The percentage of unimproved land is higher in all the New England states, except Connecticut, than in either of the two Dakotas, with their immense areas of newly opened farms, and it is higher in almost every southern state than even in Montana, Idaho, Utah or Nevada.

The enumerators of the Tenth and Eleventh Censuses were instructed to report as "improved" all tilled land, including fallow

* The counties containing the cities of New York, Boston, Jersey City, St. Louis, and San Francisco, had 115, 451, 135, 422 and 366 acres of unimproved land in farms, respectively.

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and grass in rotation, whether pasture or meadow, and all permanent meadows, permanent pastures, orchards and vineyards. As "unimproved" they were instructed to report all natural woodland and forest within farm limits, all unplowed land, and all land that, once plowed, has since been abandoned for cultivation, like the "old fields" of the South. They were specifically directed that rocky, hill and mountain pastures were not to be reported as improved land.

With this distinction clearly in mind, a brief survey of the conditions existing in the grand divisions above specified should prove instructive.

With regard, first, to the unimproved land in farms in the arid region, there will apply with almost equal force much of what has been quoted from the Report of the Commissioner of the General Land Office against the probability of any considerable increase in the total farm area. On irrigated lands, the yield per acre is relatively so high that the farmer in the arid region has every inducement to utilize, to the fullest extent, such portions of his farm as are irrigable. The land easily irrigated has, therefore, to a large extent, been already brought under cultivation, and is annually contributing to the fruit, grain and forage crops of the country. The developments of the future will be slow and costly. The average first cost of preparing the soil for cultivation in the arid region, as determined by Mr. Frederick H. Newell in connection with the Eleventh Census,* was $13.51 per acre, and the average first cost of water rights $8.23 per acre, making $21.74 as the average cost per acre of reclaiming such of the desert lands as were the most easily irrigated. In the eight states and territories lying wholly within the arid region the irrigated land constituted but little more than two-fifths of the land reported as in some sense improved, so the chances for the reclamation of the still larger body of land upon which no improvements whatever had been made are exceedingly remote. They are for the most part grazing lands and such they will doubtless remain.

Among the various astounding assertions called forth by the discussion of Sir William Crookes' address is the statement that, with wheat at one dollar per bushel, the annual production of that cereal in the state of Idaho alone might reach 400,000,000 bush-

* Report on Agriculture by Irrigation in the Western part of the United States at the Eleventh Census: 1890. By F. H. Newell, Special Agent. 1894.

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els! It is amazing that such an assertion should be given place in an article written in 1898 for a scientific publication. While farming without irrigation is successful along the northwestern edge of this most interesting and beautiful state, the state is for the most part made up of mountain, forest and desert. Its mean elevation is 4,700 feet, and over 15,000 square miles of its area is from 6,000 to 11,000 feet above sea-level. Many of its valleys and the lower slopes of its mountains are covered with a dense forest, the removal of which would be only preparatory to the construction of more or less costly irrigation works. Of every 100 acres of its land surface, statistically considered, 84 acres are still without settlers, and of these, 34 acres are desert and 50 acres forest. The entire arable land of the state has been estimated by Mr. Henry Gannett, geographer of the U. S. Geological Survey and of the Tenth and Eleventh Censuses, at rather less than 4,000,000 acres, and Mr. F. H. Newell, hydrographer of the U. S. Geological Survey, in estimating the water-supply as sufficient for the reclamation of 7,000,000 acres, makes by implication the highest estimate of the agricultural possibilities of the state that has been made by any competent and disinterested authority. Even the State Engineer estimates the amount of land that can ultimately be cultivated by irrigation in Idaho as not more than four or five millions of acres in the aggregate.* On the basis of reports from nearly five hundred local correspondents, the Department of Agriculture estimates the wheat crop of Idaho for the present year at but little more than 4,000,000 bushels, while commercial authorities in general content themselves with including it, with other states of small production, under the head of "other" or "sundry." What a fortunate thing it is that the country has been warned in advance, so that business may not be too seriously demoralized by the sudden marketing of a 400,000,000 bushel crop!

Let us turn now to that important group of states lying south of the 37th parallel and wholly or mainly east of the 100th meridian. These states contain about 22 per cent. of the entire land surface of the country, and about 29 per cent. of its total farm area. But, while their improved farm acreage is only 21 per cent. of that of the country at large, the land included in their farms

* First Biennial Report of the State Engineer to the Governor of Idaho. December, 1896. Page 7.

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and plantations and remaining in a state of nature constitutes no less than 44 per cent. of the total unimproved farm area of the country, or a larger proportion of the total farm area within which it is embraced than is to be found in any other group of states, not excepting even those of the arid region. The reason for this is not far to seek. Excluding Texas, the unimproved land of which is mainly prairie, of every 100 acres of unimproved land in farms in the states under consideration 86 were at the Tenth Census covered with forest and woodlands, the percentage ranging from 78 in South Carolina to 93 in Florida and Arkansas.

The soil of this forest area* is to a large extent of so inferior a quality that there is but little inducement to attempt its reclamation, and even after the merchantable timber has been removed from it but little effort is made to utilize it for farm purposes. This is owing to the fact that it is its mechanical rather than its chemical constitution that presents the most serious obstacle to such utilization. Containing, for the most part, an exceedingly large percentage of sand, the obstacle it presents to successful cultivation is not one that can be overcome by the use of commercial fertilizers, except for forage crops and vegetables.

While, therefore, each succeeding census will probably find some relatively small portion of it added to the cultivated lands of the various states, it cannot have the slightest bearing upon the much discussed wheat problem. For such wheat production as the farmers of the South are engaged in, the lands best adapted to the growth of that cereal are assigned, and yet in the ten years ending with 1897 the ten principal cotton states produced an average annual crop of only 23,610,671 bushels, the average annual yield per acre being only 8 bushels. Between 1880 and 1890 these states, together with Virginia, increased their area in cotton by 5,630,000 acres, their area in corn by 1,140,000 acres, their area mown by 1,320,000 acres, and the number of their milch cows by 630,000. Their area in wheat, however, showed a decline of 1,150,000 acres, a fact that need occasion no surprise when it is considered that the average value of farm products per acre of improved land in these states is in inverse ratio to the extent of their wheat production.

* See Report on Cotton Production in the United States, by E. W. Hilgard, Ph.D., Vols. V.-VI., of the Tenth Census Reports. Forestry Conditions and Interests of Wisconsin, by Filibert Roth, U. S. Department of Agriculture, 1898, may also be consulted with reference to the use of pine lands for agricultural purposes.

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There are writers who seem to imagine that the price or exchangeability of a product is the sole factor in determining the extent of its production everywhere and at all times; but this certainly does not hold good where the cultivation of the product is so difficult and precarious as is that of wheat in the southern states. For this reason, were wheat to be worth a dollar per bushel, no largely increased production need be looked for in the South. From 1879 to 1883, inclusive, the average price of wheat in Chicago was $1.08, and even the average December farm price was $1.01. During these five years, however, the total wheat production of the ten principal cotton states averaged only 24,270,000 bushels per annum, or but 660,000 bushels more than the average during the ten years ending with 1897. It is not, of course, contended that $1 per bushel fifteen or twenty years ago was the equivalent of the same price at the present time, but simply that a relatively high price failed to increase production, owing to the limitations imposed by physical conditions.

In discussing agricultural potentialities much misconception arises from taking the state as the geographical unit. From the fact that North Carolina contributes annually some four or five million bushels of wheat to the total production of the country, it might be supposed that its production could be very largely increased; but an examination of the statistics by counties discloses the fact that the crop is grown almost entirely on the high lands on the western border of the state, adjoining the Blue Ridge and Great Smoky Mountains; and with regard to the adjoining state of South Carolina, no less than 97 per cent. of its wheat crop at the last census was produced in the counties embraced within the Piedmont and Alpine sections of the state. Still, the average annual yield per acre in the two States for the last 10 years has been only 6.3 and 5.9 bushels, respectively.

In Tennessee, Texas and Oklahoma the conditions are somewhat different from those obtaining in the other states south of the 37th parallel, but the favorable conditions that render possible the larger production in these states are more or less localized and no really great extension of this branch of agriculture is to be looked for within their borders, even under the stimulus of high prices. This is equally true of Indian Territory, a region that lies wholly within the Lower Austral life zone and the large and increasing cotton production of which is itself the very

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strongest argument against the possibility of developments in the production of wheat that will be more than a mere drop in the bucket. Nature has decreed that a profitable return on the cost of cultivation shall become less and less to be depended on the farther the departure from the region to which the plant is indigenous, and the operation of this law can be arrested, in the case of wheat growing, only by topographic conditions—chiefly that of elevation above sea-level—that do not exist in Indian Territory.*

It is the firm belief of the writer that with a more diversified agriculture—in the direction of which a gratifying tendency is already observable—and with the continued development of its manufacturing industries, the South will soon enter upon an era of great prosperity, but its contribution to the wheat crop will continue to be but small.

This brings us to the consideration of that marvellous agricultural region extending from the international line to the 37th parallel and from the Atlantic Ocean to the 100th meridian—a region containing only 30 per cent. of the entire land surface of the country, but yet embracing 59 per cent. of its total farm area and nearly 71 per cent. of its improved farm acreage. The twenty-six states in this division contributed last year 82 per cent. of the total corn crop, 76 per cent. of the total wheat crop, 91 per cent. of the total oat crop, 83 per cent. of the total hay crop, and a correspondingly large proportion of the total production of every other agricultural product, save cotton, sugar cane, and the tropical and sub-tropical fruits, grown in the United States. It is obvious, moreover, that this is the region that must continue to furnish the principal proportion of all these necessary commodities.

The fact that at the census of 1890 these states contained about 115,000,000 acres of unimproved land in farms would suggest enormous agricultural possibilities, but unfortunately these large figures are to some extent delusive. Here, as in other parts of the country, the distribution of the unimproved land is anything but uniform, and the extent to which such land might be made available for cultivation likewise differs widely. In Illinois and Iowa it constitutes between 15 and 20 per cent. of the total

*The Republic of Mexico had a very creditable exhibit of wheat at the recent Trans-Mississippi Exposition at Omaha, but it was grown at an elevation of several thousand feet above sea-level.

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farm area; in New York, New Jersey, Pennsylvania, Delaware, Ohio, Indiana, Kansas and Nebraska, between 20 and 30 per cent.; in Vermont, Connecticut, Maryland, Michigan, Missouri, North Dakota and South Dakota, between 30 and 40 per cent.; in Massachusetts, Rhode Island, Kentucky, Wisconsin and Minnesota between 40 and 50 per cent., and in Maine, New Hampshire, Virginia and West Virginia, between 50 and 60 per cent. It will readily occur to the reader that these differences are largely a matter of topography—indeed only a superficial acquaintance with the natural characteristics of the different states is necessary to placing nearly all of them in their respective categories. The question is: How near do these various figures come to indicating the amount of additional land that might be brought under cultivation under the stimulus of higher prices for agricultural products? This we should be able to determine with a sufficiently close approximation to the truth by a brief examination of the conditions obtaining in certain typical states.

Beginning with Illinois, we find that at the Eleventh Census that state contained 10,116 miles of railroad and 69 towns and cities of 3,000 inhabitants or upward, of which 21 contained 10,000 or upward. It had enjoyed periods of great agricultural prosperity since it became fully settled; it possessed within its borders the greatest produce market and shipping point in the world; its agriculture was of the most diversified character, and its farmers had every inducement to make the most of the agricultural capabilities of their farms. Is it unreasonable, then, to suppose that its residue of unimproved land, 15.8 per cent., represented, if not an absolutely irreducible minimum, at least that proportion of the entire farm area which—containing, as it did, not only all waste land, but farm yards, private roads, wood lots and natural pastures—not even an era of high prices would bring under cultivation? In Iowa the conditions were in all essential respects the same, and the percentage of unimproved land differed but very slightly, being 16.6 per cent. of the whole. Ohio has been longer settled, but its surface is more broken, and its percentage was 21.5. In Pennsylvania the percentage was 28.1, many counties in the mountain region averaging over 40 per cent. and some very much higher. In Kentucky a naturally somewhat high percentage is rendered still higher by the inclusion of many fine natural parks and pastures among the unimproved. In Kansas, Nebraska, Min-

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nesota and the Dakotas, averages of from 26 to 40 per cent. are mainly attributable to the more recent settlement of those states.

Assuming that the entire region will, under the influence of high prices, have 85 per cent. of its total farm area brought under cultivation within the next 30 years, there will be added to the productive area in this region about 60,000,000 acres, with state and railroad lands to the possible extent of 20,000,000 acres in addition. This will fall so far short of the requirements of our own population that it is necessary to seek other possible additions to the cultivable area.

Not for the purpose of growing wheat, but under the influence of those generally higher prices which any considerable and long-continued increase in the price of wheat would bring about by reducing the acreage in other products, the South might conceivably add to her productive area as much as 30,000,000 acres. Ten million acres might be added on the Pacific coast and 3,000,000 acres in the arid region. This would make the gross addition 123,000,000 acres, against which must be set those continual withdrawals of land from agricultural uses which not even a high degree of agricultural prosperity would entirely prevent. Assuming the annual rate of diversion to be diminished by one-half, the loss during the next thirty years would amount to about 15,000,000 acres, making the net increase 108,000,000 acres.

This will constitute an enormous addition to the productive capacity of the farms of the country, and one the contemplation of which, aside from the question of consumption, might well appal our much-discouraged farmers. Considered, however, in the light of the requirements of a population of 130,000,000, the figures assume an entirely different aspect. On the basis of our present actual consumption as a people, to the entire exclusion of our export trade, the country will require by the year 1931 the following additional acreage: for wheat, 13,500,000 acres; for corn, 66,000,000 acres; for oats, 23,700,000 acres; for the minor cereals, 10,000,000 acres, and for hay, 40,500,000 acres, a total of 153,700,000 acres, without making any provision for the proportionately increased consumption of vegetables, fruits and other products. Instead, therefore, of the probably largely increased acreage bringing down prices or proving unprofitable to the farmers, there will be a deficiency of at least 50,000,000 acres. Indeed, it will be more than this, since it cannot be supposed for a moment

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that the unimproved lands left to the last are anything like equal in natural fertility to those first selected for cultivation. On the other side of the account, however, we have to place whatever increase in yield per acre may be brought about by improved methods of farming. But whatever agricultural science may be able to do in this direction within the next thirty years, up to the present time it has only succeeded in arresting that decline in the rate of production with which we have been continually threatened.

From 1878 to 1882, inclusive, the average yield per acre of wheat was 12.8 bushels; from 1883 to 1887 it was 11.9 bushels; from 1888 to 1892 it was 12.8 bushels, and from 1893 to 1897 it was likewise 12.8 bushels. While it has been remarkably uniform when considered in 5-year periods, it would unquestionably show a slight decline, were it not for the very high averages obtaining in those states and territories the crops of which are irrigated, and which have appeared in the list of wheat-growing states only within the last fifteen years. The average yield per acre of corn for the 10-year period, 1878 to 1887, was 24.40 bushels; from 1888 to 1897 it was 24.42 bushels. Of oats the average yield was 27.2 bushels in the former and 25.7 bushels in the latter period. Of potatoes the average yield per acre declined from 77.6 bushels to 76.0 bushels; of cotton it declined from 181 pounds to 172 pounds, and of tobacco from 727 pounds to 726 pounds. Of hay the latter period shows an increase of one one-hundredth of a ton per acre per annum, and there is also a slight increase in the case of barley, rye and buckwheat.

While there is but little satisfaction to be obtained from these figures, it must be borne in mind that it is only to a very small extent indeed that scientific methods have as yet been employed in the growing of field crops. It is unquestionably to the laboratory that we shall have to look for relief, except in so far as it may be afforded by the Government undertaking the construction of storage reservoirs in the arid region that might reclaim not to exceed 71,500,000 acres, less whatever small area might in the mean time have been brought under cultivation in that region through private enterprise.

So much as to the prospective crop situation in general; what as to the question of wheat production? That it is to the crop most readily convertible into money that, all other things being equal, the farmer will give the preference in determining what he

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will grow, needs no proof. The cultivation of wheat at the expense of other necessary crops will, however, be held in check by two very powerful influences. The first will arise from the fact that a reduction of the acreage under any product of general use below the actual requirements of the country will instantly—perhaps even prospectively—affect the price of that product, possibly in a proportion even greater than that by which its acreage is diminished, and may even be sufficient to constitute it a competitor with wheat on equal terms for the farmer's favor. The second check will be found in the fact that the American farmer, north, south, east and west, has at last fully awakened to the safety, stability and, in the long run, increased profit resulting from a judiciously diversified system of farming. The one-crop system has passed away, never to return, and before wheat can be extensively cultivated at the expense of other products it will not only have to command what would now appear to us as an excessively high price and afford a reasonable assurance of its continuing so to do, but would have to do this without affecting to any considerable extent the price of other products.

There is yet one more factor to be considered, namely, the possibility that, to a much larger extent than has ever yet been attempted or contemplated, the farmers in the different sections of the country will restrict their products to what they can raise most abundantly and most cheaply, so that the regions best adapted to wheat shall raise wheat, and so on through the entire category of farm products. This, however, would also be to a very large extent counter to that system of diversification which the writer regards as the most encouraging feature of the agriculture of our time, and while some change may be looked for in this direction, it is doubtful if it will play any very important part in our new rural economy.

To discuss the extent to which under conceivable conditions the United States may, notwithstanding this somewhat dubious outlook, still continue to contribute to the food supply of other nations, would be little more than speculation. It is sufficient for the writer's present purpose to have called attention to the enormous prospective increase in the requirements of our own population and to some of the changes in the agricultural situation which such increase will involve.

JOHN HYDE.

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THE CAPTURE OF ENEMY MERCHANT VESSELS AT SEA.

BY COMMANDER CHARLES H. STOCKTON, U. S. N., PRESIDENT OF THE NAVAL WAR COLLEGE, NEWPORT, R. I.

In an open letter, recently written by Mr. Charles Henry Butler to Captain Mahan of the United States Navy, Mr. Butler, among other things, combats the effectiveness, or military value, of the capture of privately owned ships and their cargoes upon the high seas, when sailing under the flag of an enemy. It has occurred to me, after reading this letter, and at the suggestion of Captain Mahan, that a fuller presentation of the subject, from the point of view of a belligerent, to whom the practice and principles of international law are not unknown, would be of value and interest—especially as, in my opinion, the freedom of private property from confiscation and capture on land is overestimated, and the military effect of such capture at sea not thoroughly understood. To prevent any misapprehension, I would add that I favor the repeal of any laws that give to naval officers any prize money from the capture of enemy merchant vessels at sea.

Whatever has been the doctrine of our country as to the capture of private property at sea, there is no doubt that the practice has been uniformly in its favor in all wars with nations having a mercantile marine.

In the War of the Revolution, in the quasi-war with France, in the War of 1812, as well as during the late war with Spain, the merchant vessels of the enemy were captured, without material restriction, upon the high seas. In the war with Mexico and in our civil war, the almost entire absence of an enemy mercantile marine upon the high seas prevented a similar practice. In the earlier wars mentioned, we were also considered at the same time one of the great neutral powers; but, notwithstanding this fact and

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the precedent we established against ourselves by the capture of enemy merchant vessels, we used such belligerent rights vigorously for the purpose of prosecuting these wars to a successful end.

To-day, when we are gradually assuming, by the extension of our insular territories, and still more by our far reaching and increasingly complex external interests, the *rôle* of a great possible belligerent, it behooves us to examine closely all such questions, and to study them in their relation to ourselves, and to our future complications in the arena of the world. We should not hastily restrict our war powers.

It is interesting to review the conduct of the last great land war between two highly civilized European states—the Franco-German war—with respect to the question of the exemption of private property on shore from capture. During that war, it has been authoritatively stated that the French, with their overwhelmingly superior navy—a navy that caused a paralysis of German commerce—captured ninety merchant vessels, the value of which did not much exceed six millions of francs; while, during the same period, the German armies in France took private property, by methods of systematic, but unrecompensed, requisitions and contributions, valued at more than six hundred millions of francs, not counting the damage, more or less unavoidable, caused by the march and encampment of the armies in the field. This levying of contributions and requisitions was practically a confiscation of private property, in an orderly and well distributed manner perhaps, and duly claimed as among military necessities; but no more orderly and well considered, and no more necessary, than the capture of enemy merchant vessels and cargoes at sea, confiscated only after fair trial, by civil courts, presided over by duly appointed and trained judges, and with full opportunity for defense and appeal. Pillage, it is true, has been done away with; but when in its place comes well-ordered requisitions, without payment, for such supplies as cigars, beer and wines, to be furnished by the inhabitants of a town, it cannot be said that on land private property is completely exempt from capture. It must be understood, also, that the government of France did not attempt to reimburse the losers by this war, except very partially, and only in cases of extreme poverty and distress.

Von Moltke, who represents the probabilities of the future, as

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well as the modern soldier of the immediate past, stated that he was, by no means, in accord with any manifesto which declared that the weakening of the regular military forces of the enemy constituted the sole legitimate procedure in war. "No," he said, "it is necessary to attack the resources of the government of the enemy, his finances, his railways, his provisions (stores) and even his prestige." How such objectives as these can be reached without disturbing directly and indirectly private property, it is difficult to see.

France did not suffer upon the sea in that war; but none the less was the loss of private property by the French people, by the heavy hand of the German invader, a cause for the termination of the war and for a universal cry for peace. While it is not proposed to advocate such severity, its influence for the prevention of wars cannot be ignored; and, compared to this severity, the capture of merchant vessels at sea, though effective, is certainly much less harsh.

Deliberately ordered devastation on land and the exemption, by ransom, of unfortified towns from bombardment, cannot even yet be considered as matters outside of the pale of civilized warfare.

So high a military authority as General Sheridan, in speaking of his operations in the Shenandoah Valley, treats of the whole question of the effectiveness of the destruction of private property in such a manner that I cannot refrain from quoting his remarks as not without pertinence. He says:

"I do not hold war to mean that lines of men shall engage each other in battle and material interests be ignored. This is but a duel, in which one combatant seeks the other's life. War means much more, and is far worse than this. Those who rest at home in peace and plenty see but little of the horrors attending such a duel, and even grow indifferent to them as the struggle goes on, contenting themselves with encouraging all who are able-bodied to enlist in the cause to fill up the shattered ranks as death thins them. It is another matter, however, when deprivation and suffering are brought to their own doors. Then the case appears much graver, for the loss of property weighs heavy with the most of mankind; heavier oftener than the sacrifices made on the field of battle. Death is popularly considered the maximum of punishment in war, but it is not; reduction to poverty brings prayers for peace more surely and more quickly than does the destruction of human life, as the selfishness of man has demonstrated in more than one great conflict."

Turning from the land to the sea, let us look upon the value of the merchant vessel and its cargo to the enemy as a bellig-

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erent, and the consequent military value of its capture by the other belligerent.

In the first place, as to the ship: In modern maritime war between two naval powers, as soon as the declaration of war is known, there will be in most, if not all, cases, a cessation of the deep sea sailing trade, and the vessel that is likely to be captured —after the period of exemption generally allowed upon the outbreak of war—will be the merchant steamer, either a passenger or cargo carrier. Now, the merchant steamer has many possible belligerent uses in modern naval warfare. She may not be made into a vessel for the line of battle, it is true; but, with little or no material change, she may become a cruiser or a scout, or one of the many valuable and almost essential auxiliaries that are now demanded by maritime warfare. Transports, colliers, supply ships, torpedo depot vessels, floating machine shops, water distilling vessels, and telegraph cable layers and grapplers, are or can be made from innocent merchantmen.

As to the cargo, it also can be said to have a direct belligerent value to the enemy. In most, if not all, commercial countries, it would contribute directly the "sinews of war" to the enemy government through the customs duties paid from it. Our gold interest-bearing bonds of the period of the civil war, depended almost entirely for their value upon the duties levied by custom houses. War loans are not infrequently based upon customs receipts. There is no question as to the increased cost of war in modern times. Warlike appliances, afloat and ashore, cost much in a money sense in these times, and financial resources and superiority count vitally in modern warfare.

Unrestricted commerce affords an enemy these opportunities for increasing his revenue and resources, in such manner as to cause the evils of war to bear less hardly upon the people concerned than by any other method. These sources of revenue are great means for carrying on war; their forced cessation is a great measure for causing war to close. It may be urged that, as a neutral cargo in an enemy's ship is now free from capture, through our acceptance of the Declaration of Paris, the neutral cargo will still furnish customs revenue. But it must be remembered that, where the enemy ship is captured, the neutral cargo does not go on to its destination. It must go at first, and remain for some time, with the enemy ship. Hence, this detention, and the loss it

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must entail, will cause, if the capture of enemy ships prevail, the avoidance of enemy ships as carriers of neutral cargoes.

It may be urged that a blockade would be more effective as a means of stopping trade and revenue. This is without doubt true, if a blockade can be made effective; but an effective blockade is a difficult thing, both as a military and commercial measure. If the enemy is continental in his geographical position, and connected by railways with continental systems of other countries, a forced cessation of external trade becomes most difficult, if not impossible, by blockade.

As to the *personnel* of the merchant vessels of the enemy, it must be remembered that, for a long time, these persons have been subject to detention as prisoners of war, as a sea resource of the enemy in war time. Although the skill of the able seaman is no longer found in the merchant steamers, as in times past, the crews of these steamers have sea knowledge and sea habits, and the engineers are skilled men, of the highest value on board of battleships and war vessels of all classes. Their detention from the service of the enemy would be a distinct military advantage. In international law, they are peculiar in their position. They are not exactly combatants—but, as an organized crew of a merchant vessel, they can nevertheless resist capture, and if captured they can rescue or recapture their vessel from the hands of the enemy. They may then be properly classed as part of the military or naval resources of the enemy, and, as such, subjects for maritime capture.

I will not do more than refer to the question of the throttling of the food supply of an insular or small isolated and overpopulated country, or to the effect of commerce destroying upon a country depending upon its manufactures and manufactured exports for its wealth and war sinews. Some of these countries depend upon their sea carriers for bringing them the raw materials for manufacture and for carrying the finished product to the great markets. At least one of these countries has so large a tonnage that it would be impossible to have this work done by the neutral vessels of any other country, and the transfer of that tonnage at or after the outbreak of war to a neutral flag, would be so colorable and suspicious as to justify a condemnation in many, if not all, cases before a prize court. We must not allow ourselves to be deceived by the successful "whitewashing" or transfer of

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American vessels to the English flag in the civil war. The Confederate States could not bring such cases, for manifest reasons, before prize courts, and to avoid complications the Confederate cruisers, as a rule, allowed such vessels to go free.

It must be noted, also, that the principal maritime nations of the world have given a governmental character and subsidy to various large merchant steamer lines for present and ulterior service—the ulterior uses being of a belligerent character. These vessels, constructed under governmental supervision, with a view to naval uses, have often a large proportion of their officers and crew regularly enrolled as a part of a naval reserve. They are, nevertheless, until taken by their government into belligerent service, merely enemy merchant vessels, privately owned, and as such would be free from capture, if such property were duly exempted.

I will repeat what I said in the earlier part of this paper—that I am distinctly opposed to the payment of prize money, as such, for the capture of enemy merchant vessels on the high seas. I have endeavored to show that the practice should be continued upon its merits as a military measure; it should be rewarded only in the same way as other military measures are rewarded that are incidental to a maritime war. It certainly should have no greater reward, in a material sense, than that given to phases of naval warfare in which life, limb and reputation are jeopardized.

In conclusion, I will quote from the remarks made upon this subject by one of our most distinguished civilians and publicists, the late Mr. Richard Henry Dana of Boston. He says:

> "Merchandise sent to sea is sent voluntarily, embarked by merchants on an enterprise of profit, taking the risks of war; its value is usually capable of compensation in money, and may be protected by insurance; it is in the custody of men trained and paid for the purpose; and the sea upon which it is sent is *res omnium*, the common field of war as well as of commerce. The purpose of maritime commerce is the enriching of the owner by the transit over this common field, and it is the usual object of revenue to the power under whose government the owner resides."

CHARLES H. STOCKTON.

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THE TUBERCULOSIS PROBLEM IN THE UNITED STATES.

BY S. A. KNOPF, M.D.

"IT is in the power of man to cause all parasitic diseases to disappear from the world." These words, spoken by an immortal master of modern medicine, the late Louis Pasteur, have to no disease a more just application than to tuberculosis. To the lay mind it may seem like a paradox to say that, though nearly every sixth individual is tuberculous, and though pulmonary tuberculosis, commonly called consumption, is the most fatal and the most frequently contracted of all diseases, one-seventh of all deaths being due to it, it is nevertheless the most curable of all chronic ailments. But not only is consumption the disease which can be most frequently cured, especially when the invalid submits himself to treatment during the earlier period of his affliction, but it is also the disease which can be most easily prevented. Indeed, it is the disease which the power of man could cause to disappear from the world with more certainty than any other.

Tuberculosis is a parasitic disease *par excellence*. The parasite is the *bacillus tuberculosis*, discovered by Robert Koch in 1882. It is a minute organism, in the shape of a cylindrical rod, visible with a high power microscope only after certain staining reagents have been applied to it. This micro-organism, belonging to the order of schizo-mycetes or fission-fungi in the lowest scale of vegetable life, is the specific microbe of consumption; without its presence there is no tuberculosis. Its action upon the animal organism is two-fold— local, by destroying the tissue; general, by secreting toxins which poison the entire system. The bacillus of tuberculosis may enter the human organism, firstly, by ingestion, that is to say, through food coming from tuberculous animals;

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secondly, by inhalation, that is, inhaling dusty air laden with bacilli. Such an atmosphere we may encounter wherever consumptives are careless in the disposal of their expectoration. A tuberculous invalid expectorates, at times, as many as seven billion bacilli per day, and it has been demonstrated again and again that the dried and pulverized sputum of consumptives is one of the most frequent means of transmitting this disease. The third method of infection is by inoculation, that is to say, the microorganisms enter directly into the circulation through an open wound. The most frequent way in which this occurs is through handling a broken glass or porcelain spittoon that has been used by a tuberculous individual.

Let us see what has been done, and what can be done, by the State, the community and the individual to prevent the propagation of this disease, and ultimately to eradicate it.

One of our best American authorities on this subject, Dr. F. W. Smith, of the Tuberculosis Committee of the State Board of Health of New York, wrote me some time ago that, in his opinion, the first great step toward the prophylaxis of tuberculosis in man should be to stamp out the disease in cattle.

Martin, of the Royal Commission to investigate tuberculosis in Great Britain, is of the same opinion; and so are many of our most distinguished American physicians and sanitarians who have studied the question of tuberculosis. But how far removed we are, in this country, from effectually stamping out tuberculosis in cattle, may be gathered from a report which I submitted last year to the Section of State Medicine at the forty-eighth annual meeting of the American Medical Association,* from which I give a few extracts here.

There are fourteen States which have bovine laws and regulations, and in which circulars are issued for public instruction in regard to tuberculosis in man, viz.: California, Colorado, Connecticut, Iowa, Maine, Massachusetts, Michigan, New Jersey, New Hampshire, New York, Pennsylvania, Rhode Island, Virginia and Wisconsin; two which have bovine laws, but where apparently nothing is done to stop the spread of tuberculosis in man, viz.: Minnesota and South Dakota; one which has bovine laws, but cannot enforce them for lack of funds, and where thus far the

* "The Present Status of Preventative Means Against the Spread of Tuberculosis in the Various States of the Union, Critically Reviewed." *Journal Am. Med. Ass.*, Vol. XXIX., No. 18.

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board has only issued circulars on the prevention of tuberculosis in man and beast, viz.: Tennessee; two (the District of Columbia and Oklahoma Territory) which have a law prohibiting the sale of tuberculous milk, but nothing else concerning tuberculosis in man or beast; eight which issue circulars of instruction concerning tuberculosis in man, but where nothing is done in regard to bovine tuberculosis, viz.: Delaware, Indiana, Kentucky, Louisiana, New Mexico Territory, Ohio, Texas, and West Virginia; nine where nothing is done to stop the spread of tuberculosis in either man or beast, viz.: Alabama, Arkansas, Illinois, Kansas, Maryland, Mississippi, North Carolina, North Dakota and South Carolina; seven which have no board of health, viz.: Georgia, Idaho, Montana, Nebraska, Oregon, Utah and Wyoming; five from which I received no answer, viz.: Florida, Missouri, Nevada, Vermont and Washington.

To the letters addressed to the health officers of forty of our largest cities, I received twenty-nine answers. In one-third of these it was stated that nothing at all had been done concerning the prophylaxis of tuberculosis.

This state of affairs speaks for itself, and shows that as a nation we have a most limited protection from tuberculosis in man and beast.

To combat tuberculosis in cattle and other domestic animals effectually, the federal government, having equal jurisdiction over all the States and Territories, is alone competent. How this should be accomplished enters not into the scope of this article. Abler men than myself will outline the workings of such a national institution, which might justly have its centre in the Bureau of Animal Industry in Washington, which has already done such excellent work in the direction of preventing bovine tuberculosis. But the physicians, sanitarians and statesmen, intrusted with the care and preservation of the lives of American citizens, should appeal to the United States Government to take into its own powerful hands the task of stopping the spread of tuberculosis through the bovine race. By judicious legislation and proper enforcement of laws in this direction, individuals and communities would ultimately be spared the loss and destruction of valuable live stock and property, and thousands of precious human lives would be saved.

The Board of Health of the City of New York has endeav-

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ored to enforce the registration of all tuberculous cases. The great majority of the medical profession has opposed any attempt in that direction as untimely. Still, the careless and ignorant consumptives should be controlled and prevented from doing harm. The same board and many other city boards have passed ordinances forbidding expectorating in street cars or on the floors of public buildings, and some even make it punishable to expectorate in the street. But anyone who observes at all will be surprised to note how little these ordinances are heeded. From a sanitary point of view, I am inclined to think that a more general use of the pocket flask, not only by those who are tuberculous, but also by those who have a simple cold or grip, would solve the problem of expectoration. The boards of health, the hospitals and dispensaries should distribute such flasks free of charge to all pulmonary invalids coming under their care. They should preferably be made of some light metal (aluminum or nickel) to protect the patient from the danger of inoculation through breakage. The use of the handkerchief for this purpose, while better than spitting on the floor, is certainly not very sanitary, and I have no doubt, at times, is the cause of a severe reinfection of the nasal mucous membrane.

The general public, however, does not always see things with the same eyes as the sanitarian, and some pulmonary invalids will absolutely refuse to adopt a course which would attract attention to their infirmity. The only remedy in such cases is to tell them to have pockets of impermeable material and carry with them a sufficient number of cheap handkerchiefs, squares of muslin or Japanese paper handkerchiefs, for the exclusive purpose of expectorating therein. These handkerchiefs should be burned as soon as possible after use. Of course, such patients take their chances of infecting their hands by manipulating the soiled handkerchiefs, and they should be enjoined never to touch any food with their hands without having thoroughly washed them.

The whole matter of preventing the spread of tuberculosis must forever be educational work on the one hand, and on the other the work of the State and municipal authorities, in the care of the consumptive poor and those of moderate means.

The school physician, aided by the teacher of hygiene in our public schools, must inculcate upon the pupils the ordinary prin-

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ciples of how not to become pulmonary invalids. Respiratory exercises, outdoor singing and declamation when the weather permits, will form an important part in this work. The Board of Health will have to educate the public by circulars and general instructions, and by offering gratuitous disinfection of apartments, bedding and wearing apparel. Such educational work has been most creditably done during the past years by the New York City Board of Health and in Philadelphia by the Society for the Prevention of Tuberculosis. But the greatest amount of good, the work which will be educational, preventive, and curative at the same time, must be done by the State and municipal authorities, aided by wealthy and generous citizens, by creating and maintaining a considerable number of special institutions, sanatoria,* hospitals, dispensaries, etc., for the exclusive treatment of tuberculous patients.

The need of such institutions has been demonstrated again and again; but, strange as it may seem, in this country we have fewer sanatoria for tuberculous patients, absolutely and relatively to our population and to the number of consumptives, than either Germany, England or France. The only State institution of this kind in America was recently opened at Rutland, Mass., with a capacity of 300 beds, and is called the Massachusetts State Hospital for Consumptives. The great city of New York, with its 10,000 tuberculous poor, has not enough accommodation for 500 consumptives, unless they are placed in the general hospitals, where they are a constant menace to their fellow patients suffering from acute diseases. It is not rare that a patient with typhoid fever, entering the ward of a general hospital, leaves it cured from that disease, but taking with him from the hospital the germs of tuberculosis, the invasion of which his enfeebled organism will not withstand. Still, there are in this country statesmen, physicians and philanthropists who doubt the need of special institutions. To such I would suggest a visit to the consumptive poor in the tenement districts of our large cities, and to study the hygienic and social conditions of these sufferers in their surroundings. Let them watch some of the tuberculous

* Contrary to the custom of many English-speaking people, especially in the United States, I call these establishments *sanatoria* and not *sanitaria*. The former (sanatorium), from *sanare*, to heal, gives a better equivalent to the German "Heilanstalt," the word used by the originator of this system (Brehmer). Secondly, the word sanatarium, from *sanitas*, health, is usually employed to designate a place considered simply as especially healthy, a favorite resort for convalescent patients.

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families. After lingering a year, either the mother or father dies of consumption, and the remaining partner, having become infected by nursing the companion, dies a year later, after having buried half of the children, who have succumbed to tuberculous meningitis. I am sure these visitors will emerge from the dark, dreary rooms and the crowded, unclean houses which serve as habitations for millions of poor people, thoroughly convinced of the urgent need of measures to relieve these consumptive sufferers. Let these doubters also experience the difficulty of gaining admittance as a tuberculous patient into a general hospital supported by private charity, or let them watch the rapid decline the poor consumptive often makes, even if he has been fortunate enough to be admitted to a general public hospital, and they will become still more convinced of the urgent need of creating special institutions for this class of patients. It will be clear to them that something must be done in the interest of the sick, as well as in the interest of the still healthy portion of the community.

But how can this be done, and done effectually? What class of patients should the State or municipality take care of? Only the curable, or only the incurable ones? Only the poor, or also those of moderate means? If any government is in earnest in its endeavor to combat tuberculosis effectually, besides its regularly enforced laws against bovine tuberculosis, its thorough hygienic measures against tuberculosis in man through sanitary regulations and public instruction, it must take upon itself the care and treatment of the curable and incurable cases of tuberculous patients, among the poor and among those of limited means. I mean here by limited means a financial condition which does not permit a tuberculous patient to enter a private sanatorium, or to have at home such medical, hygienic, and dietetic care as will assure him the best possible chance of recovery.

The next point to be considered would be how to recruit the patients, and how to discriminate between the proper and improper cases.

In an address which I was invited to deliver recently before the thirteenth annual conference of the State and Provincial Boards of Health of North America,* I made the following suggestions in regard to these questions:

* "The State and Municipal Care of Consumptives." *Medical Report*, September 24, 1898.

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"Just as there exists in nearly all States or municipalities, a commission or a number of special examiners, for the purpose of determining who is a proper subject for State care in an asylum for the insane, so should there exist a commission for the determination of admission to a municipal or State institution for consumptives. Such a commission, composed of a certain number of general practitioners and health officers, should be aided in its work by the charity organizations. Each and every case should be investigated by a combined committee of physicians and laymen, for the following purposes:

"1. To determine the applicant's condition by a medical examination.

"2. To visit his home if he has been found tuberculous, and to institute such hygienic measures as seem necessary (distribution of pocket spittoons, disinfectants, etc.).

"3. To examine the other members of the family, in order to find out if any of them have also contracted the disease, and, if so, to counsel proper treatment.

"4. To report in full to the sanitary authorities concerning the condition of the patient's dwelling. Its renovation or even destruction may become imperative when it is evident that tuberculosis has become 'endemic' there, owing to the condition of the soil or to other sanitary defects.

"5. To determine the financial condition, whether the patient is or is not able to pay, and whether or not by his being taken to an institution the family will become destitute.

"If the latter should be the case, it would become an imperative duty for the municipality to provide for the family. In many cases a letter of inquiry, sent to the former medical attendant of the patient, would materially aid the work of the investigation committee.

"Any individual should have the right to present himself for examination, and every physician should be at liberty to recommend any person for examination to the board of his precinct or district."

The institutions needed to carry out this plan would be:

1. A centrally located reception hospital and dispensary. The dispensary should treat the ambulant tuberculous patients, whose admission into the sanatorium is impracticable or has to be delayed for want of room. These dispensaries should also serve the patient discharged from the sanatorium as a place to seek counsel, and thus aid in his continued improvement and guard against the possibility of a relapse.

2. One or several city sanatoria, located in the outskirts, and if possible in a somewhat elevated region, where the atmosphere is known to be pure. Here all patients should pass through a preparatory sojourn before being sent to the mountain sanatorium. The more advanced cases would all be retained here.

3. One or several mountain sanatoria at no greater distance from the city than three or five hours by rail, at an altitude, if possible of between one thousand and two thousand feet, on porous ground, with southern exposure, as nearly as possible protected

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against the coldest winds by higher mountains, and preferably surrounded by a pine forest. A farm in the vicinity, where the thoroughly convalescent patients could do light work, might make the institution in a measure self-supporting. To this place the selected incipient and the improved cases from the city sanatorium should be sent to complete their cure. To the mountain sanatorium there should also be attached a department for children suffering from pulmonary tuberculosis.

4. Several seaside sanatoria for the treatment of children afflicted with tuberculous diseases of the joints and other tuberculous (scrofulous) manifestations.

5. A maternity sanatorium where tuberculous mothers should be received a few months previous to their confinement and surrounded by the best hygienic and dietetic care. They should also remain in the sanatorium for some time after childbirth. It is only by taking away these mothers from their unsanitary tenement homes, and placing them under constant medical supervision in such an institution, some time before and after their confinement, that the fearful mortality among tuberculous mothers after childbirth can be reduced.

The beneficial effect on the woman's and child's constitutions through such an arrangement can hardly be overestimated. Leaving aside the physical well being thus largely assured to mother and child at a period when their organisms need the most tender care, the hygienic training which the mother will have received in such an institution will be of lasting utility to herself and child, to the family and to the community.

These maternity sanatoria need not be situated at a great distance from the city. All that would be essential is that they should be erected on good porous ground, preferably somewhat elevated, and in a locality where the atmosphere is as pure as possible. The buildings should be constructed according to the principles of modern obstetrical science and modern phthisiotherapy. The physician in charge should be experienced in both these branches of medicine.

From the foregoing it will be seen that I am in favor of treating tuberculous patients near their homes, and in the same or nearly the same climate as that in which they will have to live and work after their restoration to health. My reasons for advocating such principles are founded on

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the experiences of all modern phthisio-therapeutists, who have demonstrated that the hygienic and dietetic treatment in special sanatoria is feasible and successful in nearly all climates. I know from personal observation that cures of pulmonary tuberculosis effected in our ordinary home climates, which are on the average not considered as especially favorable to this class of sufferers, have been more lasting and more assured than cures obtained in more genial climes. And, with all due deference to the opinion of others, I do not believe there exists any climate which has a specific curative quality for any form of pulmonary tuberculosis. Climate can only be considered as a more or less valuable adjuvant in the treatment of consumption, but not a specific.

It is, furthermore, my firm conviction that for social and economic reasons the majority of tuberculous patients will have to be treated near their homes. Only by adhering to this principle can we expect to cope successfully with tuberculosis—this disease of all climes, but which is most prevalent in large centres of population, where civilization has seemingly attained the highest standard.

That from the presence of properly conducted sanatoria for consumptives not the least danger can arise to the locality where such institutions may be placed, I have demonstrated in several of my previous writings,* from the official statistics concerning the mortality from tuberculosis for forty and for one hundred years, respectively, before and after the establishment of a sanatoria for consumptives in certain villages in Germany. I will only summarize these statistics here.

In the two villages, Goerbersdorf and Falkenstein, where five of the largest sanatoria are situated, the mortality from tuberculosis has actually decreased among the village people more rapidly and more largely than anywhere else, it being now one-third less than before the establishment of those institutions. Thus we see that properly conducted sanatoria for consumptives not only serve as hygienic educators to individuals and families, but as instructors in hygiene to whole communities. The example in scrupulous cleanliness set by employees and inmates of such sanatoria thus bears the best fruits. For, in reality, pulmonary tuberculosis is not a contagious disease; the contact *per se*, the touch of the invalid, is not capable of transmitting the disease;

* "Are Sanatoria for Consumptives a Danger to the Neighborhood?" *Medical Record*, October 3, 1896; *Revue de la Tuberculose*, Paris, Vol. III., pp. 313-319.

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it is the ignorant, unclean, or helpless patient, who, by his mode of disposing of his expectorations, endangers the life of others. The breath of a consumptive is not to be feared, it does not contain the tubercle bacilli, nor its spores, nor other dangerous organisms. Thus it is more correct to call pulmonary tuberculosis only a highly communicable disease, and we repeat, from living or coming in contact with a clean, conscientious, tuberculous invalid, nothing whatsoever is to be feared. At that excellent American institution, the Adirondack Cottage Sanitarium at Saranac Lake, under the direction of Dr. E. L. Trudeau, not one of the nurses or medical attendants who have worked in it in the past fifteen years has ever contracted pulmonary tuberculosis.

To create the large number of institutions needed to combat tuberculosis by isolating the hopeless cases in special hospitals, and sending the curable ones to sanatoria, the State and municipal funds are scarcely sufficient at present. While it is to be hoped that the respective authorities will do their share, the need of a number of large sanatoria in this country is so great that we must appeal to the wealthy and philanthropic citizens to come to our aid in establishing sanatoria for the consumptive poor.

In England, Germany and France the government has created some institutions, but the majority of the sanatoria existing in these countries have been created and are maintained by the generosity of individuals. Recently, in England, the Prince of Wales has given the matter his attention. He presided over the first meeting held at Marlborough House, a few weeks ago, for creating and maintaining sanatoria for the consumptive poor. Some of the crowned heads of Europe, such as the Czar of Russia, the Empress of Germany, the Emperor of Austria, the King of Saxony, the King of Sweden and the young Queen of Holland, have placed the sanatoria for the consumptive poor under their high protection, and have opened their private purses for their support. The nobility and the leaders in finance, art, and literature have been eager to imitate the noble example set by their sovereigns, and they, too, have given freely toward the erection and maintenance of such institutions.

Shall this great country, with all its wealth, with its many generous and patriotic philanthropists, remain behind in the onward march of effort to eradicate a disease to which rich and poor, old and young, fall victims by thousands every year? In

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no other country has the mortality from tuberculosis diminished in such a marvelous way as in England, where special hospitals for consumptives have been flourishing for over fifty years. The death rate per million of the population of England and Wales from pulmonary tuberculosis was in the years named as follows:

1870	2,410
1880	1,869
1890	1,682
1896	1,307

Every consumptive taken from the tenement districts to a sanatorium or special hospital to be cured, or for the purpose of isolation, means a suppression of a centre of infection. Every tuberculous patient cured means another breadwinner and useful citizen, who might have become otherwise a public charge.

The curability of pulmonary tuberculosis is demonstrated every day. The most frequent and most certain cures are obtained by the hygienic, dietetic, and educational treatment in sanatoria; that is to say, institutions where the open air treatment, the best food, and the thorough hygienic management constitute the main factors of therapeutics. Here the patient is not only cured, but taught how to remain well, and how not to infect others.

The average results obtained in sanatoria for early cases are fifty to seventy per cent. of cures; for the more advanced they vary from fifteen to twenty-five per cent. If I apply Vaughan's estimate for 1896 to 1899, I may say that, of the seventy million people living to-day in the United States, ten million or more will die of tuberculosis, unless something is done to prevent it.

There is much that can and should be done. Let our statesmen work to create a department of public health at Washington, with full power to combat bovine tuberculosis. Let our municipal authorities, with strict but humane laws, reduce the danger of the transmission of tuberculosis from man to man. Let statesmen, municipal authorities, physicians, and philanthropists unite to establish sanatoria and kindred institutions for tuberculous patients, especially for the poorer classes, for from these arises the greatest menace to the public health. Then with the dawn of a new century we may hope to see a satisfactory solution of the tuberculosis problem in the United States.

S. A. KNOPF.

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THE EVOLUTION OF THE COLORED SOLDIER.

BY W. THORNTON PARKER, M. D., LATE A. A. SURGEON, U. S. ARMY.

WHEN colored troops were enrolled, soon after the close of the War of the Rebellion, the Southern States were in a chaotic condition. Troops occupied the strategic centres, and "carpet bag" politicians and adventurers swarmed into the conquered territory, their thirst for money making them willing to risk somewhat of safety in order to arrive early upon the field to reap the harvest that cruel war had placed within their reach. The negroes, freed from slavery and intoxicated with the license which they knew not how to use reasonably, were ready for almost anything except wage labor.

The war being at an end, the profession of arms, with the showy uniform and military pomp, offered them a tempting experience. To recruit a colored regiment was therefore not a very difficult undertaking, especially so when ignorance and savagery were no bar to acceptance by the recruiting officers. Hundreds of freed negroes flocked to the recruiting stations and were quickly transformed into recruits for the United States colored regiments. The fiat had gone forth that the freed men were no longer to be merely enrolled as soldiers to do duty as teamsters for the quartermaster's department, but that they were to appear as soldiers, drill, and do guard duty, with equal rights with the white veterans of the late war. In compliance with this idea, an expedition assembled and marched westward from Fort Leavenworth, Kansas, in the early spring of 1867, over the Santa Fé trail, through the "great deserts," which were then occupied by the active and warlike Indians. Their advent astonished everyone. The frontiersmen looked upon them as a military caricature, the

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fruit of some political deal, unexplained and unreasonable. The officers detailed to serve with them were half ashamed to have it known. The white soldiers who came in contact with these recent slaves, now wearing the uniform of the regular army, felt insulted and injured; and their redskin adversaries heaped derision upon the negroes by taunts and jests, and loudly called them "Buffalo Soldiers," and declared they were "heap bad medicine" because they could not and would not scalp them.

Such was the very unpromising advent of colored troops to do service as soldiers on equal terms with regular veterans. A detachment of this regiment was ordered on duty at Fort Craig, New Mexico, and shortly after their relief from quartermaster's duty they were, to the astonishment and disgust of the white troops, detailed for guard duty. This was more than the white soldiers could endure, and so general and open was the opposition that a condition of things bordering on mutiny resulted. Great anxiety existed among the officers as to the outcome, and the gravest fears were entertained.

The threats of vengeance against the "nigger soldiers" were so openly made in the hearing of officers that bloodshed was seriously anticipated, and earnest consultations concerning postponing the colored guard detail were held. It was finally decided, however, that the colored new guard should march on at all hazards, and when guard mount sounded the entire garrison was in a state of anxiety never before experienced. The old guard was assembled and instructed and warned, the men listening in sullen silence. Never before had it been necessary for their officers to appeal to them. They had served long and well together; and respect and confidence were genuinely entertained for each other to a degree almost unknown among the troops east of the Mississippi. These veteran Indian fighters would follow their officers cheerfully and persistently through any danger or hardship, but when it came to being "obliged to salute a nigger in uniform" their proud soldierly spirits rebelled at the thought, and they muttered openly their intense aversion to this innovation. The music of guard mount sounded shrill and forbidding; the guards fell in with a sullen determination on their faces as if they were about to take part in a critical event in their military career. The new guard marched on in a shuffling, shamefaced way, as if they too wished it were over. As they came near the old guard, everyone

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watched to see what would happen. Lieutenant ———, whose commands had always been obeyed in the past with cheerful military promptness, took a hasty look at the set faces of his men as the black detail approached. The time had come.

"Present arms!" he ordered, as the guard reached the saluting point, but not a veteran moved a muscle, and the black detail passed without any other recognition than the soldierly salute of the officers' swords. A consultation was held, and the white soldiers were warned that their conduct would be regarded as mutinous if they continued to disobey orders.

Again the black detail marched past, and again the order was disobeyed; not a rifle stirred from the shoulder. The commanding officer now appeared upon the scene and delivered to his veteran soldiers a sharp and stinging rebuke. His decided and harsh tones concealed the sympathy he felt in his heart. He had his duty to discharge, and he informed the men whom he had led in battle, and who had never failed him, that if they refused to salute the new guard, they would be relieved and taken to the post flagstaff, and tied up by their thumbs until they consented to give the required salute.

This was the climax. The whole garrison was in a fever heat of excitement. Would these brave fellows yield? Would men who had records such as theirs in the Indian War, and who had never quailed in danger, give way at the threat of cruel physical torture?

Once more the blacks were moving rapidly to the saluting line. For the third time, the rifles of the old guard were at the shoulders.

"Present arms!" rang out clear and distinct, but not a rifle moved. That settled it. The men were dismissed, and as prisoners marched to the flagstaff. Around their thumbs the cruel cords were tied, and they were hoisted upward until only the toes touched the ground. There was no word of protest, no look of anger. Proudly and firmly, as if in Indian torture, they endured the ignominy and pain of their position. Their officers were with them, beseeching them to yield. The pain became more and more insufferable; they almost fainted. One of the officers suggested to the men that they could pretend to yield, agreeing to "salute the uniform of the United States, even if borne by a nigger." This gave a chance for compromise, the cruel cords were

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severed, and the brave veterans were released. They were too lame and injured to hold a rifle then, but it was agreed that thereafter military courtesy should be shown to those wearing the uniform.

This incident at Fort Craig illustrates the discord which then existed between the white and colored troops of the regular army.

South of Fort Craig, beyond the river, stretched the lonely desert known as the Jornada del Muerto, or Journey of Death. Ninety-nine miles, without wood, water, or grass, leads the straight road to Fort Selden. Here another detachment of the 37th was stationed.. Continuing the march, the remaining detachments pushed on through sixty-five miles of desert to Fort Cummings, N. M., where they relieved the garrison, consisting of two companies of the 125th U. S. Colored Volunteer Infantry. Here, isolated in the desert, stood a fortress built of adobe. It was designed by General McClellan, and was constructed with strong walls completely surrounding the garrison buildings, a feature quite uncommon among the so-called Western forts. Generally speaking, the forts of the frontier are merely collections of buildings about an oblong space, which serves as parade ground.

To the north of Fort Cummings, Cook's Peak rose in its majestic grandeur, and, beyond, the cañon extended away for miles. Through this a road led in the direction of the Rio Miembres, twenty miles away. But to the west and southwest stretched the limitless prairie, dreary and desolate. The only green things visible in the landscape were the few stunted trees at the spring, half way between the Fort and the entrance to Cook's Cañon. After marching for days and weeks through an enemy's country, with the rough mess-kit of a campaigner, with the horror of a visitation of cholera, to which their brave surgeon and his wife fell victims, these ignorant colored soldiers, who had been buoyed with delusive hopes on leaving the fertile lands of Georgia, found themselves in this dreary, prison-like abode, exposed to all the discomforts of a home in the desert, and to all the dangers of a powerful tribe of merciless Apaches, forever on the warpath. It was enough to sadden the hearts of the best white troops, and it is no wonder that dissatisfaction rapidly spread, until in their undisciplined state a mutinous spirit developed.

The veteran volunteers, with their gallant officers, had marched away; and, with the exception of their own officers and

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a squad of the 3d U. S. regular cavalry, there were no white men to give their influence towards preserving order.

In the early days of colored troops in the regular army, it was essential, to get the best results, that they should serve with white troops, so that discipline could be enforced when necessary. It was a decidedly risky experiment to attempt making soldiers of such people. They needed the object lesson of contact with white troops. Naturally of an imitative disposition, the colored man took the white soldier as his pattern, carefully watching every gesture and movement with inquisitive concern. Recruited from the most dangerous and shiftless of the freed negroes, they were naturally lazy, and disinclined to do the work required of them. They spent all their leisure time in gambling, drinking and quarrelling. Every possible punishment employed in the discipline of frontier posts was inflicted upon them. They were stood on barrels, they were "bucked" and gagged, they were marched about the garrison with heavy planks tied to their backs, bearing the word "gambler" in chalk. Everything was done to discipline them, every means taken to make soldiers of them. But so rapidly did the mutinous spirit develop in the command, that only by the merest chance was a tragedy averted.

Through the confession of a servant it was discovered that these colored men had entered into a plot to kill every white man in the garrison, to capture the horses and such property as they might desire, and to carry off the officers' wives as their slaves. The details were so completed that every match was to be dampened so that no light could be made, and the caps were to be removed from every revolver.

With remarkable coolness, the officers prepared to face the terrible situation. A rumor was purposely circulated that the paymaster had arrived. The colored soldiers were ordered to be mustered on the parade without arms. It had been previously arranged that the squad of white cavalry were to secretly occupy the quarters of the colored men and to prevent at all hazards their returning to secure their rifles. The cannon had been loaded to the muzzle with grape and canister, and two of the officers detailed to turn them upon the mutineers should occasion require. The commanding officer, with the officers and white non-commissioned officers of the garrison, appeared before the command, and announced to them that their plot had been fully discovered; and

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he demanded, then and there, the surrender of the ringleaders. Immediately the companies broke ranks and started for their quarters, where they expected to find their rifles. They discovered, however, that the doors were closed, and at the windows stood the squad of white cavalrymen with their carbines levelled at them. Turning again, they saw that the officers had drawn their revolvers, and that the cannon pointed threateningly in their direction. In terror many fell upon their knees and begged for mercy, others protested their innocence and pointed out the ringleaders, who were quickly secured with the assistance of the guard, which had been carefully selected from the men who could be depended upon, and the mutineers were confined, and in a short time the disturbance was thoroughly quelled.

Such is a brief chapter in the history of colored soldiery in the regular army in 1867. From such discouraging beginnings has developed a military organization of brave and efficient soldiers, who have since then made excellent records for themselves in many deeds of gallantry in battle with the Indians. No longer do the red men throw taunts at the black soldiers, for they have found them foemen worthy of their steel. No longer do officers consider it humiliating to serve in negro regiments. On the contrary, they are favorite commands to-day. The 24th and 25th Infantry, and the 9th and 10th Cavalry are a credit to the U. S. Army. Post schools and devoted and intelligent officers have developed the colored recruit until he has become a trustworthy, brave, and intelligent soldier.

"They love their uniform and take great pride in it—great pride in their bearing. They love to have everything in first-class shape—chest out, and every button shining, and every strap correct, and they'll follow you everywhere you take them. You know they are always right behind you, they don't care what the danger is, so long as they have a white man for their leader, and they won't follow one of their own color across the street to pick apples—you can't make them." This is what an experienced army officer says of them in a recent number of "The Outlook." The fierce battles in Cuba, in which they gained fresh laurels, have not disheartened them. It is the same old story; they have won again the respect of friend and foe. "The colored troops fight bravely."

W. THORNTON PARKER.

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THE AWAKENING OF CHINA.*

BY THE REV. JUDSON SMITH, D.D., FOREIGN SECRETARY OF THE AMERICAN BOARD OF COMMISSIONERS FOR FOREIGN MISSIONS.

NOTHING can be more fascinating than the stirring of new life in a great nation or group of nations. The Crusades belong to the Heroic Age of Europe, when a common impulse of faith and adventure swept over Latin Christendom and precipitated great armies of Europeans upon the Holy Land and the East, and sent a reflex wave of superior culture and widening horizons over the new nations of the West. The Reformation of the sixteenth century was the awakening of Europe to new thoughts and life and hope, and called out heroic deeds and movements of deepest import among the nations. No part of English history is so attractive, reveals the greatness of the people so clearly, or gave to English institutions so sure a hold upon liberty and righteousness, as the epoch of the Puritan Revolution. That greatest of modern states is still living in the strength of those heroic days. A new sense of national unity, consecrated to liberty, sprang into quick and conscious being in the war for the Union and is still the dominant note in our national life.

During the last thirty years, Japan has emerged, or, come forth from its seclusion, put off its outworn institutions, renewed its life and set out on a national career full of noble aspirations and of wonderful resources. And the spectacle has commanded the admiring attention of the civilized world. In spite of events in Europe and America of the deepest import and the most surprising sweep, this Sunrise Empire has held the eyes and fascinated the thoughts of the nations, and has found a frank and hearty welcome as she has sued for a place in the circle of the great Powers of the age.

* This article is based upon a visit to China made by the author during the past year.

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And now, after the sleep of centuries, we look upon the awakening of China, the stir of new life among her rulers, the impact of new forces upon her social and intellectual institutions. It has been long in coming, many obstacles have been encountered, many more yet remain to be overcome; but the crisis is at hand, and the movement has begun. The forces that have wrought to this end have come from many sources, some without, some within; they have worked without collusion, without mutual recognition, but they have conspired to one end.

The contact and encroachment of foreign powers by commerce and by war; the travels and studies of leading Chinese in foreign lands; the natural effects of freer diplomatic intercourse with other nations; the long, widely spread, persistent and increasing influence of Western missionaries, teaching, embodying and exemplifying their faith and mental culture and spiritual life; these, and things like these, have wrought their work and reinforced each other, and made a steadily deepening impression upon the mind and heart of this vast people. And, at last, the war with Japan, so brilliantly successful on the one side, so humiliating and stunning on the other side, made further inaction impossible, let loose the convictions slowly gathering strength, and demonstrated that new ideas, new forces, new modes of life, must come or the nation sink in ruin. The shock, though rude, was necessary and wholesome, and we are looking upon its first results.

It would be folly to say that all the attention now given to China and the unfolding of her destiny is disinterested; obviously the great powers of Europe are more bent on making their own fortunes than on aiding China in her need, on guarding their own standing and future than on maintaining any interest of China. Nevertheless, the spectacle of China's awakening, which is an open fact, commands the eyes and thoughts of Europe and America. Even though the movement is at the beginning and it is still doubtful whether the Celestial Empire can retain her autonomy and independent development, we cannot turn away our eyes, or draw off our thoughts, or cease to speculate, to hope, to fear, as we consider what issues are involved and what the outcome may be.

This world-wide interest is only just and natural. When we remember the territory involved, more than four million square miles, fronting the sea by a coast line of three thousand miles,

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within the temperate zone, of singular variety, fertility and resources; when we recall the people, four hundred millions of souls, one-fourth of the human race, a people of great powers, noble history and rare endurance; when we note these things, it is not strange that our minds are fascinated as the destiny of this great land and people unfolds before our very eyes. No drama of deeper meaning or wider interest has ever been enacted on the great stage of the world's history, and in few has the stake of other nations been so great.

The political elements that enter into the movement are only a part of the whole; the question at issue is not simply who is to possess the soil and rule the people of China. What are the Chinese to become, what part are they to play in the future, what share are they to have in the life and intercourse and thoughts of coming ages? It were strange, indeed, if questions like these were not to stir our hearts and touch our minds with an enduring interest. For the nations of the earth have a common life, and share a common destiny. No nation liveth to itself, and no nation dieth to itself. It deeply concerns America, England, Russia, Germany, France, what becomes of China and her hundreds of millions; in truth, these nations, severally and together, have no small share in determining the fortunes of this oriental world.

Many things conspire to show that the old order is changing, that a new life is rising in this land of seeming stagnation and death. Some of them are due to outside forces acting upon the government or the people, some spring from within, from new thoughts and hopes that agitate the foremost minds of the land. First among these, we note the opening railways in different parts of the Empire. The time is not remote when the effort to lay a railway in China was met by popular uprising and the complete demolition of everything connected with the enterprise. But that time is forever past, and the hand of the imperial government would sternly crush any popular attack upon the railways now building or in actual operation. A road three hundred miles in length, from Peking to Tientsin and thence to the sea, and to extensive coal mines in the northeast, has been built for some years, runs many trains a day and carries thousands of passengers, native and foreign. A line connecting with this, from Peking to Paoting-fu, a hundred and ten miles, has just been completed and put into operation. Shanghai is now connected with its sea-

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port, Woosung, by rail. Many other lines are projected, and some of them are sure to be built; from Paoting-fu eight hundred miles southward to Hankow, an interior trunk line, connecting the capital with the rich and populous valley of the Yang-tse-Kiang; from Hankow nine hundred miles southward a continuation of the trunk line from Peking to Canton through the very heart of the Empire; from Paoting-fu some five hundred miles westward to the vast coal measures and iron mines of Shansi, giving these mineral riches access to the sea and to many other provinces; from Tientsin five hundred miles southeastward to Chin Kiang, traversing the fertile and crowded province of Shantung; from Peking three hundred miles northeast to New Chwang, connecting with the great Russian transcontinental line. It is foreign capital that is building these extensive lines; but the Chinese government favors the enterprises and forbids popular molestation. Nothing indicates more sensibly the awakening of the nation, nothing aids and intensifies it more directly. The straight lines of the iron road will compel a readjustment and limitation of the almost omnipresent cemeteries of China, and will pay small respect to the sensibilities of the Dragon god outstretched beneath the ground; the shriek of the whistle, the roar of the trains, will break effectually the sleep of ages, and will set the pulses of the people beating to new feelings and purposes; travel will widen the thoughts of men, and correct ignorance and cement a real unity of life and interest between all parts of the land. The navigation by steam craft of the great interior waterways of China, which is already revolutionizing passenger traffic and the transportation of freight, still further serves the same purpose, and belongs to the same order of things.

Closely related to this quickening of communication is the introduction of manufactures and mining operations. A half-dozen cotton mills, in dimensions like those of Lowell and Manchester, running with full power night and day, are already in operation at Shanghai, a significant beginning of new industries in the Empire. An Anglo-Italian syndicate has obtained a concession for exploiting the vast coal measures and iron mines of Shansi; and the railway projected thence to Paoting-fu will carry their products to the markets of the world. Foreign capital and enterprise are also occupied with these undertakings; but they create a great demand for native labor, they will multiply the

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rewards of labor and the comforts of life on a wide scale; they are an incessant assault upon ignorance, and a spur to mental activity and life. That they can exist at all is clear proof that a new spirit has come over the land; their continued existence and growth must shatter superstition in its very centres and give the nation a forward impulse.

A second interesting fact is the appearance of schools of high grade, recognized, if not supported, by the government, in which English is taught, and Western science and history form a part of the curriculum. The Imperial University at Tientsin is an example, where the president and two of the professors are Americans, and where two hundred and fifty students are gathered from many parts of the Empire, and subjected to a discipline essentially the same as that which is given in the colleges of our land. A school of high grade for Chinese girls has recently been organized at Shanghai, where English and science will be taught, with a foreign lady as principal and missionary ladies in the Board of Counsel. These schools are of recent origin, and denote the heightened esteem in which the outside world is held, and are the open windows through which the light of the world's best culture and civilization is streaming in.

Another interesting sign of the times, closely related to this, is the desire for Western learning, and the growth in the number of educated Chinese who are reading Western books. It is well known that the Emperor has ordered to be brought to the palace everything published by the mission presses in the Empire—the Bible, school books in science and history, and other specimens of the world's literature—and that he has read these books. Not a few of the men high in government circles are seeking eagerly for the knowledge which the literature of the world conveys, and are keeping pace with the progressive thought of the times. Even in the anti-foreign province of Hunan officials are found who are caught with the new learning and are eager to explore its treasures and gather its fruits. There is actively at work in China to-day a society for the diffusion of Christian and general literature, translating into Chinese the best things in the literature of the world and circulating them widely among the learned and official class. Its sales are already very considerable, and they are steadily increasing. And a new sentiment toward the outside world, toward government and education, and life itself, is springing up

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wherever these fertilizing streams are flowing. This is an agency of revolution and improvement of the very first importance.

The edicts of reform issued within the year by the Emperor are perhaps the most striking evidence of the reality and character of the awakening that is abroad in the land. They indicate remarkable insight into the causes of China's weakness, and equally remarkable courage in applying the needed remedy. The new regulations in regard to government examinations made an absolute revolution in the educational and intellectual standards of the country. Hereafter every candidate for a government degree, all who ever expect to have a share in the government of the Empire, must sustain an examination in the sciences and history of Western nations. This at once created the necessity of schools to teach these branches. A central university is to be opened at Peking, under two presidents, one a Chinese, the other Dr. Martin, many years a missionary of the American Methodist Board. Dr. Martin is charged with the duty of finding teachers for the new subjects and of directing the work of instruction. He must bring in at once twenty or more highly educated foreigners, either missionaries or men of like culture and sentiments. The best men trained in our mission colleges will be in great demand as teachers in the affiliated schools all over the Empire. Temples are to be placed at the service of these secondary schools, the priests to be turned adrift, and government fees support the schools. In all this we have the public recognition that Chinese learning as heretofore regarded is found wanting, and that the learning that thrives in the Occident, which has yielded Japan such resources, which the missionaries have embodied and taught for many decades, must hereafter be the light and mainstay of this mighty nation.

The enforced resignation or imprisonment of the Emperor who sent out this edict will not entirely abolish it or strip it of its power. The Empress, though a powerful woman and the head of the conservative influence, is not believed to be strong enough permanently to arrest this new and progressive force, even if she really desired to do so. The nation is astir with the movement from Burmah to the Great Wall, from the ocean to the Hindoo-Koosh, and the old order can never return.

Other progressive edicts are equally aimed at deficiencies in the political, economical and intellectual conditions of the

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land, and propose appropriate remedies. It is marvelous that the Emperor, trained and surrounded as he has been, was led to see these things, to conceive the needed corrections, and actually to give them the support of imperial edicts. Had he measured the forces necessary to carry his plans into effect as wisely as he discerned the needs of the Empire, and had he provided the supports of the new order as skillfully as he applied the needful remedies, he must have led a splendid and successful national transformation. Even as it is, it may be safely said that he has struck out the path that reform must take, if the Empire retains its unity and life.

An editorial in the *North China Herald*,* gives a succint summary of these decrees, and points out the striking fact, which most writers have failed to discern, that every one of them has respect to a radical weakness of China and proposes the true remedy, that no selfish or personal aim attaches to any one of them, but that they seek the public welfare in ways of high intelligence and wide vision. They are not more radical changes than have occurred in recent Japanese history, and if they could have been steadily put into operation the Empire would have reaped a great and lasting advantage. And it is not clear yet that some of the most important changes will not be effected at once, and others, in part at least, after no long delay. Whatever happens, two things have occurred full of significance and hope. A Chinese Emperor has shown himself capable of taking bold and well considered steps toward the thorough modernizing of his government and people. He was supported in these things by a band of the most enlightened and capable of his subjects, who have suffered temporary disabilities with him for their patriotic purposes. A wide and influential circle of men in official positions have sympathized with his aims, and still desire to see the nation guided along these paths of reform. Their numbers and their courage are astonishing, considering the past history of China, and they create a great hope for the future. The reaction that has set in does not represent the best or most vigorous elements in the nation, and it cannot long hold its own. It takes counsel of the fears and superstitions of the people, not of their hopes and aspirations, and it is essentially weak. As Athanasius said of the violent reaction of Julian the Apostate against the new-born Christian faith of the

* October 31, 1898, Shanghai.

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Roman Empire, so we may say of the *coup d'etat* which has put the Empress Dowager temporarily in power: *Nebecula est, transibit.* Meanwhile, the capacity of the Chinese to conceive and put into execution great measures of reform has been demonstrated beyond question or doubt.

One additional source and evidence of China's awakening is found in the spread and success of missionary work. This is a liberalizing influence of incessant and unmeasured activity; it is exerted on large numbers, mainly the youth, in all grades of society from the lowest upward, and over a great extent of country. It is a training in knowledge and virtue, according to the world's highest ideals, under conditions favorable for deep and lasting results. It is a leaven cast into the bosom of society, not for a day or a year, but for generation after generation, slowly but surely leavening the whole mass. It reaches further and penetrates deeper, and abides more permanently than any merely external influence. By its very nature the Christian society tends to increase and gather strength, and overcome opposing strength, and become the controlling and inspiring force. Already at not a few points this potent social influence is in the ascendant, in many others it is steadily advancing to the supremacy. There are no minds so eager for the best things, so devoted to the nation's welfare, so proud of China's true glory or so able to lead her on to win and possess it, as those which have been trained in the mission churches and schools from one end of the land to the other. In these centres of aggressive life new China has her camps, her captains and her soldiers of the line. They are making ready to do for her what the churches and schools of Canterbury and Winchester, of London and Oxford, of Lincoln and York, did for England in the seventh and eighth centuries. Any study of China at the present time that leaves these out of the account fails to grasp the whole problem.

Nothing could be more interesting or more important, as revealing the motives and development of the political drama enacted in Peking during the last six months, than a recently reported interview with one of the leaders of the Reform party, Kang Yu Wei, who was fortunate enough to escape the fate which overtook his associates, and reached Hong Kong in safety, where this interview was given. This young Cantonese, well educated, deeply imbued with Western learning and with the ideas of re-

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form, belongs to a group of educated Chinese of official rank which has for some time been studying the history and institutions of the outside world, and favoring measures of reform. He has had free access to the person of the Emperor, has conferred with the Emperor about the needs of China, the improvement of the administration and the necessity of important changes. He has, at the Emperor's request, memorialized the throne from time to time on these subjects, and set forth at length practical measures for the betterment of the government and the increase of China's power. He and those for whom he has spoken have gained the confidence of the Emperor, and have encouraged and shaped his growing purpose to reform the government and put China by the side of other nations.

The edicts lately issued by the Emperor, which have betrayed so clear a sense of China's weakness, so sure an instinct of the true path of reform, have embodied many of the points included in these conferences and memorials. The Emperor was taking steps to emancipate himself from the control of the Empress Dowager, to dismiss the old and conservative ministers, who, with the Empress, wished to throttle all attempts at reform, and to call into service younger and progressive men, who would co-operate with him in allying China with the civilization of the West. The substitution of Western science and history for the Confucian classics in the government schools and in the examinations for degrees, may have been prematurely attempted; but it was a magnificent ideal, and applied a radical remedy to the political evils of the Empire. In the intellectual world it is what the railway is in the physical world, the death blow of superstition, the powerful stimulus of progressive life and thought, the open channel of a new national life, and a vital bond between the Celestial Empire and the civilization of the world.

This interview sets Kang Yu Wei before us as a wise student, a far-sighted statesman and a true patriot; he seems to have cherished no personal aims in all his plans, but to have sought his nation's deliverance and strength. The Emperor is also disclosed in an attractive light, as discerning the weakness and needs of the Empire, as seeing how these are to be overcome, and as heartily welcoming the benefits which the Western world has to bestow in its arts and sciences, its learning and faith.

The inherent weakness of the throne is revealed by the course

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of events, and it is one of the sacredly cherished aims of Kang and those who share his views, to rescue the Emperor from his present thralldom and to help him reorganize the government upon a sounder and more permanent basis. The letters he has received from the Emperor since their last interview, which he makes public, are pathetic and inspiring. If there is any way by which the present dynasty can be made serviceable to China and the Empire saved from decay, it must be through such plans and measures as this reformer cherishes, reinforced, if need be, by the aid of friendly foreign powers.

The Chinese move slowly, and some have mistaken this fact for inability to move at all. But many things combine to show that changes are firmly maintained if once they have been intelligently made. And the process of educating the Chinese mind in the facts and principles of modern life is now going on upon a wide scale. The outcome of the war with Japan has compelled the governing class to inquire into the causes of Japan's victories, and to study the arts and sciences of the West. The multiplication of scholars in the government schools who know English and are thus brought into contact with the life of progressive nations, tends to the same end. Diplomatic intercourse with the great nations of the world is a constant stimulus to wider knowledge and more liberal views. The efforts of the Society for the Diffusion of Christian and General Literature have multiplied the number of readers of Western books in all parts of the Empire. The influence of the various schools and other labors connected with missionary work has wrought silently, widely and steadily to create enlightened views and to introduce modern ideas of manners and laws and life. And a goodly company of men and women around the numerous and widely scattered mission stations is already in active sympathy with these forces that are awakening the thoughts and modernizing the life and institutions of this great Empire. In this respect, as in so many others, the Emperor's thoughts pursued the path of reality and recognized facts, when he contemplated the substitution of Christianity for the state religion, as the mother and cherishing atmosphere of the best life and arts for the nations.

Everyone who considers the matter carefully must be deeply impressed by the evidence here given that the sentiments of reform have so considerable a hold on the educated young men of

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China, and that they are animated by a pure patriotism and high personal aims. It is said that the six companions of Kang Yu Wei who have suffered death at the hands of the Empress, all of high rank and position, friendly to reform, familiar with the life and learning of other nations, might have saved themselves if they had preferred life to honor and country. One of them, Kang Kuang Jên, a brother of Kang Yu Wei, being offered protection in a foreign Legation, is reported to have replied: "No reform can succeed but by the shedding of blood; I am ready to die." Their death for devotion to reform and what they deemed the welfare of the nation, sheds a real lustre on the Chinese name, and adds to the common wealth of the world. A cause for which such men are willing to die cannot perish in their destruction; others will arise with the same spirit to take up their cause, and in a happier time, under more favoring conditions, perchance, will see it carried on to victory, as the principles of the Puritan Revolution, which seemed to be overwhelmed in the Restoration under Charles II., under the tyranny of James II., emerged and reasserted themselves, and set the throne of England permanently in harmony with the freedom of the nation and with righteousness.

The friends of China, nay, the friends of liberty and progress in the earth, must desire to see the autonomy of this great people preserved, their government freed from superstition and inherent weakness and adjusted to the new sentiments and relations of these later times, and its future development carried on under a native dynasty. When we consider this remarkable country—its vast extent, its enormous resources, its imperial position; and the people themselves—so numerous, so capable, so industrious, so fitted for great deeds, with a history prolonged through three thousand years; the reformation of their government, the universal spread among them of the best learning and institutions and faith of the world seem things to be ardently desired, freighted with blessings of supreme import to the world and the ages.

JUDSON SMITH.

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OUR MERCHANT MARINE.

BY THE HON. SERENO E. PAYNE, CHAIRMAN OF THE COMMITTEE ON THE MERCHANT MARINE AND FISHERIES IN THE HOUSE OF REPRESENTATIVES.

"WHOSOEVER commands the sea, commands the trade; whosoever commands the trade of the world, commands the riches of the world, and consequently the world itself."

The fathers were early imbued with the wisdom of these words of Sir Walter Raleigh, and at the very beginning of our national existence adopted measures for the upbuilding of the American merchant marine. They had experience under the restrictive laws of Great Britain, which allowed American ship yards to build nothing larger than sloops that could not take part in the ocean carrying trade to any great extent. Under this policy, prior to the adoption of the Constitution, we were carrying only about eleven per cent. of our foreign commerce in American ships. The First Congress passed an act imposing discriminating duties upon goods imported under a foreign flag. They also imposed enormous tonnage taxes on vessels sailing under foreign flags. On the first of September, 1789, Congress provided that none but American built vessels should receive an American register and carry the American flag. This act has remained in full force until this day; an exception only having been made in the case of the "New York" and "Paris" in 1893.

This last act has afforded complete protection to the coasting and lake trade. Under its fostering influence this commerce has increased to immense proportions. No other nation has any domestic trade that equals it. It furnishes the lowest water transportation in the world. It has been the most potent influence in keeping alive the shipbuilding industry in this country during the last half century.

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In 1794 Congress passed an act imposing an additional duty of ten per cent. upon the goods imported in ships or vessels not of the United States. This act, or one substantially like it, has remained on the statute books down to the present day. But it has long since lost its effective force by reason of the treaties made with the different maritime nations of the world.

Down to about 1840 vessels engaged in commerce were built of wood. This gave our nation great advantages. Our forests furnished the raw material for the building of ships at a far less cost than that attainable by any other nation. Once our ship yards were established, this advantage enabled us to build ships cheaper than could any other people. Under these fostering influences, we were soon able to carry from eighty to ninety per cent. of our ocean commerce in vessels under the American flag.

Feeling secure because of this advantage in the cost of building ships, our law makers began to yield up the various protective measures which Congress had enacted. By various treaties, commencing with Great Britain in 1815, we surrendered discriminating duties on imported goods. This was followed by the act of 1828, which provided for the discontinuance of discriminating tonnage duties whenever a reciprocal arrangement of the same nature could be effected with foreign nations. Smaller maritime powers took advantage of this act at once. Great Britain soon followed, and now nearly all the maritime nations have relieved themselves from the burden of this legislation.

In 1838 the practical importance of steam navigation first appeared, with a force which has since revolutionized the ocean carrying trade. Great Britain was quick to see this opportunity. She could build ships equipped with steam power more cheaply than it was possible for us to do in this country. She entered upon a policy of subsidies, and made her first contract for the Cunard line in 1839. The contract provided for four steamships at a yearly subsidy of eighty-one thousand pounds. Increased advantages were given to the Cunard Company in 1846, 1854 and 1858. To offset the effect of this action on the part of Great Britain, Congress passed a subsidy bill in 1845, which continued in force until repealed in 1858. Under these varying conditions, although Great Britain had made considerable inroads in capturing our carrying trade in later years, still we held sixty-six per cent. of it in 1860. Then followed the War of the Rebellion, which drove

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half of the American ships from the ocean. Since that time the change in construction of vessels from wood to steel, the cheaper construction in British yards, and the almost entire absence of any legislation to encourage the American merchant marine, has caused a gradual and pitiable decline, until now we carry only about eleven per cent. of the commerce of the United States.

This has entailed a great loss upon our people. The estimated annual freight receipts in our foreign carrying trade is placed at a low figure at one hundred and seventy millions of dollars. This condition means much to all our people. It means the drain of that much gold every year. Could it be distributed in this country, it would add this vast amount toward national wealth. It would go to the artisan, the merchant and the farmer.

The attention of thinking men has been directed for many years to the decline of American shipping and the problem of its restoration. Just now our attention is called to it in a striking manner by the development of Asiatic trade. Japan is furnishing such a market that we are unable to charter ships under any flag sufficient to carry the steel, cotton and other goods required of us. Hastening events are opening wide the doors of trade in China. Now is the opportunity to get into these new markets of the world.

Trade follows the flag. We are ready to compete with the world in everything made from iron, steel and cotton, and a hundred other things. We want a market for the cereal products of the Northwest and the Pacific slope, without sending them to Liverpool, and paying toll to Great Britain, before they reach Asiatic ports. The same is true of the South American markets, both on the Atlantic and the Pacific. To reach these markets now we must send our mail, and often ship our goods, by the way of Liverpool. This is a terrible handicap to our trade. American vessels, manned by Americans, would result in great advantage in marketing American goods. All admit the desirability, from a purely commercial standpoint, of building up our merchant marine.

In case of war between Great Britain and Germany, the ships that carry our commerce would be driven from the sea. We cannot estimate the interruption to commerce, the inconvenience and loss to our foreign trade that would follow. The ad-

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vantage, in time of a war of our own, in having great ships that may be turned into cruisers and transports was demonstrated in our late affair with Spain. The four auxiliary cruisers from the American line, thoroughly manned with experienced seamen and engineers, ready for duty at a moment's notice, saved us many times all the money we have ever paid to maintain this line. Panic in our coast marine service followed the starting of Cervera's fleet. The sailing of our merchant cruisers, and the fact that they could locate and report the Spanish fleet, in ample time for Sampson to intercept them, restored confidence and saved our coastwise trade.

The necessity being demonstrated, the question presents itself, What course shall be adopted? Some of our citizens suggest free ships. That would open the door and allow vessels built in a foreign yard to be registered and sailed under the American flag. It is unquestionably true that a steel steam vessel costs more, built in the United States, than on the Clyde. The materials from which it is made, in the advanced state of manufacture at which they are laid down in the ship yard, cost about the same here as in Great Britain. But the difference is in the cost of labor. On the Clyde, the material constitutes about two-thirds the cost of the ship and the labor one-third. In the best ship yards in America, the labor in the yard equals one-half the cost of the ship, while the material equals one-half. In other words, labor here costs fifty per cent. more than the price abroad. Could we employ our American yards to their full capacity, this difference would be greatly reduced. Go further, and give Yankee ingenuity and inventive genius full play in our American yards, and the time will soon come, as it has already come in all processes for the manufacture of iron and steel, when the improved method and machinery will counterbalance the greater wage paid in this country. Already the use of pneumatic tools, an American invention, is doing much to reduce the cost in American ship yards. Certainly it would not seem wise to reverse our policy and close our ship yards with the admission of free ships, just as we are getting in a way to make the best ships that float.

But free ships would not overcome this difficulty. It costs more to run a ship under the American flag than under a foreign flag. Statements made by owners of vessels similar in char-

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acter, sailing under the American flag and under foreign flags, giving the details of expenses, show that the sailor of an American vessel receives about double the wages paid to those sailing under the foreign flag, and that by the same owner. A foreign sailor will cross the dock from an English or a Norwegian vessel, and, shipping under the American flag, will demand double wages and the full American bill of fare. Our navigation laws require a better and more expensive fare, and every charge of maintenance is increased. If our ship owners could buy to-day where they please, it would not tend in the least degree to solve the problem.

A return to the discriminating duty of ten per cent. upon all imported goods is suggested. This worked well at the beginning of the century, but conditions have changed. In the first place, we would be required to abrogate all our treaties, for in them we have agreed to make no discrimination of duty. This, by the provision of each treaty, requires a notice of at least twelve months; in many of these it requires a notice of at least two years. It would take over two years to get such a law in operation. Meanwhile, British and German merchants, sending their goods under their own flag, would have become firmly intrenched in the Asiatic markets; and the present opportunity would be lost. Close following upon the abolition of the treaties would come retaliation. Discrimination would be restored against us, if not in tariff, in tonnage and other dues. This method of relief seems impracticable.

Another suggestion has been made, that we pay export bounty upon all the commodities sent out of the country in American vessels. Here, again, we are met with treaty obligations that must be abrogated. But even if these were abrogated, each other country could impose an import duty equal to our export bounty, just as we are to-day doing in our tariff laws upon all bounty paid sugars. Such a provision as this could be so easily met that it is not worthy of consideration.

This leaves, then, as the only alternative, a proposition to equalize the conditions of running American built vessels under the American flag, by the Government paying a sufficient compensation to the owners to make up for the increased cost of seamen's wages, provisions, and so forth, in sailing an American vessel under the American flag. We have already seen that an American built vessel costs more than a vessel built elsewhere.

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Having determined what this difference in cost is, we must compensate for the interest on the investment (generally borrowed capital, for which the owner must pay interest), for the insurance, which will cost six per cent. annually on the additional cost, and for the depreciation of the vessel by age, on the basis of the difference in cost. We must add to this the difference of the running expenses of the vessel under the American flag. When we have done this, we have simply equalized the conditions. Nor does this meet the whole question. France is paying a general bounty to all her vessels. Germany is paying large subsidies, both to her lines engaged in the American trade and, by recent contract contemplating the construction of a number of new vessels, a large subsidy for the lines engaged in the Asiatic trade. Great Britain pays large mail subsidies to certain lines, amounting to about five million dollars a year, lines with which our new American merchant marine would come into direct competition. These countries not only have the advantage of cheaper labor, but their shipping has the advantage of these subsidies.

The bill proposed, and now pending in the House of Representatives, "to promote the commerce and increase the foreign trade of the United States, and to provide auxiliary cruisers, transports, and seamen for government use when necessary," has been carefully framed, with a view to meeting the conditions arising from the increased cost of building and sailing an American vessel. With such aid as this bill affords, it is believed that American capital will come forward to meet the requirements of the situation. The bill provides that contracts may be made under it, to run for a period of twenty years, securing payment to owners of vessels plying under the American flag, in annual sums sufficient to equalize the difference in cost of American and foreign ships, and the expense of running them. American ship yards are not prepared to meet at once the emergency and provide sufficient tonnage required for the present condition of affairs in the South American and Asiatic trade. The bill, therefore, allows the registering of foreign built vessels to a limited extent, to receive the benefits of the act, providing that American built tonnage is added in a proportionate amount during the reasonable time named in the bill. It requires of the vessel owners, in return for this compensation, that they carry the United States mail at all times free of charge; that they carry at least

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twenty-five per cent. of Americans in their crew; and that the vessels may be used by the Government in times of war. It also requires the instruction of a number of American boys as sailors.

The expenditure under the bill will not be large for the first year. The Commissioner of Navigation estimates that it would amount to about five million dollars in the fifth year, and to eight million dollars in the tenth year of its existence. By a proposed amendment, no contract can be made under the bill after ten years from its passage. The latter figure, eight million dollars, represents the total expenditures of France for a similar purpose in 1897. Great Britain spent as much as six million dollars a year as late as 1870 for a similar purpose, and is spending more than five million dollars now. She spent two hundred and fifty million dollars in fifty years.

The result aimed at is one to be greatly desired. The saving to this country in money paid as freight, would amount to many times the expenditures under this act. The saving in money which must necessarily be paid in carrying our mails, especially as the result of our growing commerce, would prove a large offset to the amount paid under this bill.

As a matter of national defense, the expenditures under the bill will accomplish far more than the like amount of money spent in additions to our navy.

In 1793, Mr. Jefferson, after speaking of the value of the merchant marine from a commercial standpoint, added: "But it is as a resource of defense that our navigation laws will admit neither neglect nor forbearance."

Mr. Arthur Sewall, in advocating this bill before a committee of the House recently, said: "Pass this bill and dot the shores of the Atlantic and Pacific with busy ship yards. Never mind your navy; with the facilities afforded us by these ship yards, we could build a navy in ninety days."

We have reached the period of a new development in American industries. The beginning of the next century will see this nation making giant strides toward capturing the markets of the world. The conditions are all favorable to this. We have reached that stage of perfection in manufacture where our goods recommend themselves. We can make the best. In many lines we can make them at the lowest price, and by improvements in meth-

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ods we are swiftly reaching that point in all lines. Brought face to face with the problem of cheap production in supplying our own market, the American mechanic is thinking out the best methods, the best machinery, and is accomplishing the best results.

But we must provide the means of transportation under the American flag.

When we do this, our commercial victory is won, and there can be no limit to our commercial achievement.

SERENO E. PAYNE.

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NOTES AND COMMENTS.

THE EXISTING COURT-MARTIAL SYSTEM.

THERE is an old saying: "Courts Martial are organized to convict." Recent events in the experience of at least one country across the water, have lent some color of justification to the remark. To the honor of America, be it said that no stigma akin to the Dreyfus outrage has ever scandalized our military courts. To the civilian mind, however, the constitution and procedure of courts martial present some strange anomalies. It is with no desire to criticise that the writer feels impelled to call attention to some of them, but rather with the purpose of asserting the right of a military defendant to the same privileges and safeguards guaranteed to a civilian on trial for alleged offence against the law. Theoretically, there obtains in courts martial the same right to a trial by jury as in courts of law, and the same rules of evidence are adopted; practically, the operation is far different.

First, let us consider the constitution of the court. Once selected by the appointing power, right of challenge is allowed for cause only; military law does not seem to contemplate, nor does the practice, so far as the writer has been informed, permit any preliminary examination prior to the statement of the cause of challenge. It will readily be seen that unknown or latent circumstances affecting the fitness of a member, the presence of which would be revealed only by preliminary examination, are apt by this method to be concealed; and the defendant is at disadvantage in consequence.

Second, the court exercises a dual function: In its judicial capacity, it passes upon all propositions of law; as a jury, it passes upon all matters of fact. It is an anomalous system, which adopts as its basis the rules of evidence as defined by Mr. Greenleaf and other standard legal authorities, and leaves the interpretation and application of those rules to a body of laymen; and whatever may be the ability of the members of the court in their own profession, the system is no less anomalous. No one would expect a lawyer, in the absence of special training, to enter the field of therapeutics and undertake to expound the application of medicine to disease. Why, then, should a soldier or a sailor undertake to interpret the law and apply it to the facts? A good judge, just as a good physician, is the product of many years of exclusive devotion to his profession. Why, then, should a body of gentlemen, whose entire time has been spent in other lines, be invested with judicial functions calling frequently for the most delicate legal distinctions? A lawyer witnessing a parade drill could hardly be expected to pass judgment intelligently upon matters involving the construction of Upton's tactics; no more could a life-long

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soldier weigh and pass upon nice distinctions, the drawing of which requires minds trained for that special work. The finest architect in the world would not be competent to decide at a naval review close questions involving nautical tactics. Why, then, should a sailor, whatever his proficiency in his own line, be expected to intelligently pass upon all those nice judicial distinctions, the proper understanding of which has required the closest study of the brightest minds since courts first existed?

It seems strange to a civilian that, in matters involving so much as is frequently at stake in courts martial, good name, or even life itself, the individual who has so much at hazard should be denied that protection which an upright, learned bench in civil courts always affords to a defendant, however petty may be the matter in dispute. Assuming that the military and naval officers composing courts martial are always conscientious, diligent and at the head of their professions, the disadvantage of a court martial defendant as compared with the defendant in criminal or civil courts still exists.

In this connection it may be proper to refer to another factor entering into court-martial decisions, and I do so with all proper respect. Officers in the army and navy have a very sensitive and punctilious regard for all matters of professional etiquette and the traditional amenities of their official life, the violation of which so often forms the basis of courts martial. It is well that such a sentiment exists; the writer is not complaining of it, but merely calling attention to its existence as a factor entering into this discussion. Members of courts martial are human; they are as apt as other men of like probity and moral stamina to be influenced unconsciously by preconceived ideas born of special education along the lines just referred to; and such ideas are quite liable to ripen into opinions, even before the trial occurs. It therefore follows that, unknown to themselves, the members of a court martial may enter upon the trial with a latent prejudice against the accused. Repugnance against the offense has developed into repugnance against the alleged offender. The very fineness and delicacy of this sense of official etiquette has thus become an obstacle to the free operation of justice; and the stronger the moral tone of the subject, the more unconsciously this influence works, and the more difficult it is to locate and resist it. An additional reason is thus seen why men so situated should not be made judges of the law as well as of facts; some check should be provided, such as the civil courts afford, and this brings us to the next point in our discussion.

Third, the Judge Advocate has a dual function. The defender of the present system will doubtless say at this juncture that the legal rights of the accused are preserved by the Judge Advocate. Now, the Judge Advocate, when accused has no counsel, arranges in proper shape the evidence of the accused, and presents the same, and in all cases advises the court on points of law, and acts as prosecutor also, which is his first and chief duty. This is a difficult *rôle* for the most upright man, however well poised he may be intellectually, and whatever his professional ability. In order that this peculiar conjunction of duties may not operate disastrously to the defendant, the Judge Advocate must be a perfect man. Prosecutor he is, first and chiefly, in practice at least, whatever he may be in theory; he is also, as his name implies and his duties confirm, a *quasi* judge advising upon points of law—these two always; and sometimes, also, the protector of the accused, when no counsel is present. In law courts, ethics, as well as common sense, forbid a man to be counsel on both sides of the case. The

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reasons are too apparent to require discussion. Furthermore, a judge will not sit on a case in which he has at any time been counsel. Thus careful and delicate is the law, in drawing the line for the protection even of property interests, however small, as well as in matters wherein the higher claims of name, fame and life itself are involved. Why should the position of a defendant in a court martial be less advantageous than that of a defendant in a court of law? As I have intimated, if all Judge Advocates were perfect men, then, and only then, would the present system operate fairly to the defendant. We may assume that a Judge Advocate is subject to the frailities and motives characteristic of the race. Now an advocate is a partisan; and so also is a prosecutor; a judge must not be a partisan, whatever else he may be. The Judge Advocate's functions are incongruous, when considered even theoretically; when considered practically, they are not only incongruous, but dangerous to justice as well. A prosecutor desires conviction; a lawyer wants to win his case. When a prosecutor is invested with semi-judicial functions, so that he may advise the court as to the competency or relevancy of testimony introduced by himself, as well as by his opponent, and is still expected to at all times discharge that function properly and righteously, a difficult task is set for human brain and human heart.

Again, a good advocate requires one order of intellect; a good judge requires another. Few names which are luminous on the bench shine with equal brilliancy from the bar; and *vice versa*. Human experience has shown how widely different is the endowment for a judge from that required for an advocate; and that wide difference constitutes a gulf which should forever divide the one function from the other. For one man, whatever his endowment of mind or soul, to be clothed with both functions in the same case, is to ignore the lessons of human experience and to gravely imperil the administration of justice. A perfect man could hardly respond to the demand; and Judge Advocates, it may be assumed, are not perfect.

But it may be argued that, while the Judge Advocate may advise the court on matters of law, the court is not bound thereby, but has full power to decide all questions for itself. It is true that such power exists, but it exists without the proper legal knowledge necessary for its accurate and intelligent exercise; and power without knowledge is the most dangerous kind of power; it is worse than impotence. The power of a mob is power without knowledge. The good name, liberty or life of no American citizen should hang upon such a slender thread.

It is not the province of the writer, or necessarily within the range of this discussion, to indicate the remedy for these apparent evils. A few suggestions, however, may not seem altogether out of place.

First: Extend the right to challenge members of the court, and alter the rules of examination permitted, so as to have a system similar to that in civil courts.

Second: Abolish the judicial functions of the members of the court, and confine them strictly to the jury function.

Third: Let the Judge Advocate be a prosecutor only.

The adoption of the above suggestions would involve provision for certain conditions arising as a consequence of the changes. For instance, the judicial function denied to the members of the court must be represented otherwise. In trials for offences reaching a certain magnitude, the nearest Federal judge might be called in to pass upon points of law; in trials for

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lesser offences, some person skilled in the law might be regularly employed by the government to act in the judicial capacity, and with that as his sole duty; or other courses might be pursued, such as should seem best calculated to procure the results desired. We have to do with the abolition of the evil, not the suggestion of a remedy; for the evil once clearly recognized, the government will discover the remedy and be quick to apply it.

We have the most superb army and navy on this earth: in courage, in *morale*, in proficiency, intelligence and patriotism, no finer bodies of men exist anywhere. Their achievements gleam like stars in the firmament of our national glory; they deserve the best we can give them in all things—the best ships, the best guns, food, clothing, the best protection. And the best protection means not only armor for their ships and walls for their forts; they are entitled to protection in life, liberty and reputation. These men did not leave behind them all these things, so dear to every citizen, when they entered the army or navy; in proceedings where all or any one of these three jewels of American citizenship are involved, the soldier and the sailor should be given the same privileges and should be hedged about with the same safeguards as are demanded by the law for the protection of all other American citizens.

EARL M. CRANSTON.

HOW HOLLAND HELPS THE HELPLESS.

THIS is an age when man has assumed the office of his brother's keeper more vigorously, perhaps, than at any previous period. Sociology—the science of living so as to obtain for all and from all the best results of living—engrosses public attention as much as it did in that theory vortex of the French Revolution, with this difference—the application of theories is insisted upon more strongly than their evolution. It is well, then, to turn our eyes to an object lesson presented by the most practical nation on earth. The difficult problem of assisting the poor without pauperizing them seems to have been successfully met by the Dutch. A model in miniature exists of a community where those who have lost their hold on prosperity are re stored to at least a semblance of self-support, family ties are preserved, education is afforded the young, and, in short, the utmost possible is made of the most unpromising material.

The Poor Colonies of Holland, four in number, are not, as might be supposed, a government institution, though at one time co-operation with the government was attempted which resulted quite injuriously to the undertaking. These colonies owe their origin entirely to a Society of Beneficence ("*Maatschappy van Veldadigheid*"), organized in 1818 to meet the exigencies of destitution entailed on Holland in common with the rest of Europe by the wars of the Napoleonic era. After passing through many vicissitudes and various stages of growth, the charitable enterprise at present consists of property to the amount of a little over 5,000 acres of land in the heart of the country, Steenwyk, the nearest town, being five miles distant.

Every subscriber or group of subscribers paying into the treasury of the Society the sum of $20.40 annually, is entitled to send a family to one of the four colonies, which are named respectively Frederiksoord, Wilhelminasoord, Willemsoord, and, wherefore is unknown, Colony Number Seven. The necessitous individual forced to enter on life as a beneficiary of the Society is provided with a home for himself and his family; also with the

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immediate necessities of living, and, above all, with work, from the proceeds of which he begins to repay in small weekly installments the advances made to him. Wages such as are current at the time in the neighborhood are paid weekly, and there is deducted from them, as an installment on the debt, house rent, not exceeding twenty cents, one cent infirmary fee for each inmate of the home, four cents for a clothing fund, and a sum amounting to ten per cent. of the gross earnings for a reserve fund against family emergencies. A valuable contribution to each household is the ewe sheep provided by the colony, and also to be paid for by due economy. Its milk, equal to goat's milk in quality, supplies food, and its wool is woven into garments. The family, it will be observed, is always maintained in its entirety, the importance of the family life being, as is known, ever highly esteemed in Holland, while the large infusion of Jewish blood into the Dutch is believed to have also a strong and favorable influence upon the system.

"No idleness" is the watchword of the colony. Children even while apprentices are taught to make salable articles, which are purchased from them, the compensation being proportioned to the excellence of the workmanship, and each child, when not engaged in learning a trade, must attend school. It is a curious fact that, though the free school originated within the borders of Holland, school attendance is compulsory in these colonies only, so dear is the liberty of the individual held.

Two years of successful probation as a workman on the farms of the colony, or in its shops or factories, entitle a man to an individual farm, of 7.7 acres (small enough in our eyes, but in Holland large enough and fertile enough to support a family), and to the franchise of the colony. That of the State is his inalienable right, in common with every other descendant of "the free Frisians," but he thus becomes a voter upon the affairs of his little world—a "vrijboer" in fact. If his occupancy of his farm should begin in mid winter, the new farmer is furnished with fodder for five months, enough rye to sow 2.4 acres, and 33 bushels of potatoes—these being charged to him on account. At other times he inherits some planted crops.

The best advice as to the character of produce to which his land is adapted is constantly at hand, for the government has located one of its agricultural experiment stations within the limits of the Society's domain, and inspectors of the colony visit him to see if the utmost possible is being obtained from the farm. A cow is also supplied him, and the manure, if carefully husbanded, will save him the expenditure of $14 yearly for fertilizers required by the regulations. For rent he pays $20 annually, and $4 upon his indebtedness. For each payment tendered before it is due a remittance of 10 per cent. is made, and every inducement is held out to encourage thrift and stimulate industry.

The farmer is lord of his own land, with the understanding merely that he will use it to the best advantage, and he has a vote in the election of the four delegates to the council of the colony which co-operates with the Director, Secretary and Treasurer in the management of its affairs. His tenure is life-long, except in the case of flagrant misconduct, and widows have frequently retained farms and continued to work them.

The Society endeavors to have all the houses alike and each plot of ground as desirable as every other. After the Holland fashion, the stable, barn and house of the farmer are all under one roof, but they are all subjected to the proverbial Dutch cleanliness. The combined structure

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shelters the family, the cow and the products of the farm. The dwelling part has two rooms—one being the kitchen and dining-room, and the other the parlor and bedroom. The bedroom feature is concealed, for, according to the local custom, the beds are shelves in a closet, so that when the closet doors are closed during the day no suggestion of a bed appears.

That the colonists are happy and contented is shown by the fact that during 1894, out of 284 heads of families living under the wing of the Society and, in a measure, on its bounty, not one farmer left, and only three laborers failed of their promotion to the dignity of a farm.

The average expense to the Society for each member of the colonies yearly is $9, and in many cases the amount is less. In 1895 there were 1,826 residents in the four colonies, of which 199 families belonged to the farmer class and eighty-five families to what may be called the probationary. Thirty-five births had taken place during the previous year, twenty-four deaths had occurred, and forty-six young men had left for work outside.

And here we come to the most important feature of the colony—the future of the children born or brought into it. Charity has made further provision that the helplessness of the parent shall not handicap youth in its preparation for the battle of life. In addition to the public schools established by the State, technical or professional schools exist, endowed by General Van Swieten as a memorial to a departed son. And a nobler gift never was known, for in these institutions agriculture, horticulture and forestry are taught, there being 943 acres of forest land within the bounds of the colonies, and pupils are paid for work done in the course of their education. Thorough training in forestry, as is well known, is almost security for a position in Europe, and, in addition to profit, many refining influences enter through the cultivation of flowers. And every year there are competitive exhibitions of produce, stock and general farm conditions, in addition to floral displays, with prizes for the winners. The best results, as a rule, are obtained with colonists coming from rural districts or from the smaller towns, and, it may be added, that proportionately more money comes to the charity from the same sources.

The people who come to avail themselves of the benefactions of the colony have generally led a life of hardship and privation, so that they early reach a helpless old age. To minimize their sufferings an "Old Folks' Rest" has been built, which is supported in part by the Society and in part by the more thrifty and generous of the colonists.

The reader must not assume that this novel Dutch experiment of directing the poor in ways of industry and economy has become as yet self-supporting. Such is not the case. At the close of each year each individual under its protection owes the Society $1.54, besides what has been supplied him on account; or, if this debt also be included, he owes about $12. But the condition of the average tenant has been greatly ameliorated. He has been able to command many comforts and some luxuries which are ordinarily beyond the reach of the very poor, and his children have been taught habits of thrift and a degree of self-reliance, self-respect and ambition which, but for the friendly guardianship of the Society, they would never have known. Whether the constant expense which the enterprise entails upon its generous sponsors will be diminished as time passes is uncertain; but all friends of good order and good government may well ask themselves the question whether the destitute of any land can be cared for less expensively. In any case, the prime consideration is its compre-

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hensive humanity and the serious and momentous fact that, instead of multiplying beggars, this charity multiplies citizens, the children of the first tenant almost always acquiring an energetic and provident spirit which renders them independent of all assistance.

BESSIE B. CROFFUT.

OUR FISH SUPPLY AND ITS DEFICIENCIES.

LAST year, according to Cousin Bull's sombre publications, aptly termed blue books, there were landed upon his shores nearly 800,000 American tons of fresh fish, but for our knowledge of Uncle Sam's supply we must await his census; he enlightens us only once a decade. London's consumption of fish in 1896 was nearly 221,000 tons, whereof two-thirds was haddock. We prodigal Americans do not itemize our transactions so particularly, there being no figures, census or otherwise, indicative of the consumption of Greater New York. Its approximation, however, to that of the British Metropolis is unlikely, despite the superiority of our table fish, our two favorites, cod and bluefish, excelling in such regard the lowly haddock and herring, that respectively lead in London. Popular choice, however, is governed by its purse, but no European epicure has our command of such marine delicacies as Spanish mackerel, pompano, sheepshead, shad, red snapper and whitefish, all ordinarily of moderate price. Nevertheless, the British flatfish are worthy objects of our envy, especially the turbot, brill, and, above all, the peerless sole, with which we have nothing to compare. Our repeated efforts to establish this gastronomic treasure in our waters have been abortive, but it is regularly imported, retailing at seventy-five cents a pound. In our off-shore waters there is no lack of fine flatfish, but beam trawling, as practiced by the British, is expensive, and we have so many other species of fish that are finely flavored, abundant and cheap that it will not pay to drag the sea bottom, even for the rich harvest that awaits such gathering. Among these choice objects of our neglect is the pole flounder, practically unknown in our markets, but which, in flavor and quality, almost equals the kingly sole. Some day our score species of nearby flatfish, together with other neglected but easily obtainable deep-sea species, will be accorded their meed of public favor, and vast stores of finny provision, now lying undisturbed, will enlarge and vary our dietary. With a diversion to the fisherman of a due proportion of the profits now absorbed in inefficient marketing methods, a long-hoped-for and not improbable reform, our many fallow fishing grounds can become the basis of profitable operations.

The alimentary value of fish is indisputable; it is wholesome and nutritious, and in its wide range of quality and flavor affords gratification to the coarsest as well as to the most refined palate. Moreover, in primary cost, it is the cheapest of flesh foods, and should, therefore, be the universal aliment, everywhere a staple dish upon the family board. To most, however, it is substantially a luxury; in many localities it is not obtainable fresh, and so falls into public disfavor; but even where presented in acceptable condition, the accommodation is usually effected with difficulty and expense, involving a corresponding limitation of sale. Thus it is that the consumer is dissatisfied, the dealer is not content, and the producer, the poor fisherman, rightly bewails his lot, for he profits least. It can be truthfully said that there is no branch of civilized effort wherein the producer receives so small a proportion of the ultimate or consumer's price, as does the toiler

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of the sea for the unchanged product of his labor. Our New England fisheries have declined one-third in value within the last fifteen years for lack of a remunerative market, and yet proper facilities of distribution would enable the thriving millions of our inland population to absorb the entire catch at advanced prices. The meagreness of the returns will be appreciated by the following quotations of recent wholesale prices: In 1897 the average price of haddock in London was about two cents a pound, the rate in Boston and New York closely approximating the British, and in the two American cities cod has frequently been quoted at the same figure. Abroad, the marketing of catches of herring for less than a cent is a common occurrence, and in this country so scant is the pecuniary return that a portion is converted into fertilizers. All that the Irish fishermen received last year for their catch of mackerel was, upon an average, less than one and a half cents. At the height of every season upon the Columbia River shad falls to a cent, much of the catch being thrown away, a common disposition of fish that fails to command a remunerative price. In July and August last the following staple fish, in prime condition, were more or less frequently quoted at a cent a pound—bluefish, weakfish or squeteague, porgies or scup, pollock, mullet and yellow perch; and from such prices the inefficiency of our marketing methods may be inferred.

It should be remembered that this is the day of the refrigerator car, the cold storage warehouse and the chill chambered ship; that from Chicago and from remote Argentina, Australia and New Zealand many millions of carcasses of beeves, sheep, rabbits and poultry annually reach London in excellent condition, and finally, that such portion of the carnal aliment as is transported in a chilled, rather than a refrigerated state, is received by the British consumer in even better flavor and quality than when first embarked upon its voyage of thousands of leagues. The great mass of the American people are ignorant of the excellence of their many varieties of marine fish, and are denied the opportunity, for lack of obtainable facilities, of giving them the appreciation that is their due. Nor does the limited fraction of the public that is so favored command its finny luxuries at a reasonable price; every housekeeper is sensible that her market bills diverge widely from the average rates accorded the retailers, whose rendered accounts never hint at a tumble of bluefish to a cent a pound.

The fishmonger is the public's servant, and it must be said, in justice to him, that his master is capricious and exacting, indisposed to go out of his way to secure any advantage of service, but, whenever the humor seizes him, must be accommodated at his very door. Co-operation with the factor in marketing a big catch is not to be thought of; the customer will not be troubled in any way, and, if incommoded, easily avails himself of a varied market to effect a satisfactory substitute. The business talent and splendid organization that have so amazingly developed the meat industry of Chicago and of the West could probably achieve results almost as wonderful if directed to the systematic distribution of our fresh fish. Not only would millions of our vast population be thus benefited by their easy attainment of a cheap, wholesome and palatable flesh food, but the declining fisheries of our Atlantic seaboard would be revived, inland transportation and other distributive industries would be stimulated, and capital find a field of profitable as well as beneficent employment. France expends annually immense sums in bounties to her fishermen, with the object of maintaining a nursery of seamen for her naval marine. It would seem judicious to provide for the

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probably increased future requirements of our navy, not by wasteful subventions to our fisher folk, but by promoting the establishment of a home market for the much-needed product of their languishing industry.

It is the fastidiousness of the appetite of civilization, perhaps equally with increase of population, that excites the concern of thoughtful men as to the adequacy of our future wheat supply. For the civilized world is becoming a hive of bread and meat eaters; it is forsaking the food staples of its fathers and cleaving unto new idols; it is the nicer taste, in addition to the multiplication of its peoples, that causes consumption to tread so closely upon the heels of a production that has discernible limits. Half a century ago potatoes were the mainstay of the mass of the Irish people, oatmeal was the earlier dependence of the Scotch, and to-day as yet unjoined to the ever swelling army of breadeaters, we find, even in our Southern States, a frequent retention of the ancestral "hominy and hoe cake" to the exclusion of the modern staff of life. The rate of individual meat consumption has increased as markedly as that of wheat, but it is likely that the limit of the production of edible flesh will be sooner attained than that of the leading cereal. The ultimate absorption by our steadily increasing population of the large surplus of wheat now exported seems certain, with the inevitable result of establishing a higher range of prices. No food return from land is so scanty and unprofitable as that derived from the raising of cattle, and the conversion, therefore, of much grazing into cultivated land, with a consequent meat scarcity, may be anticipated as the natural outcome of a probable permanent advance in wheat. From the inexhaustible sea we could, however, continue to reap a harvest of unfailing abundance, for in its depths lie, as yet undisturbed, vast reservoirs of excellent but unfamiliar food fish. We have ventured only to the threshold of the treasure house of the deep, but its future revelations of novel alimentary wealth will enrich the dietary of our posterity, and form an ample store of varied sustenance.

The popular preference for meat, while to some extent due to its variety of culinary adaptation, is based in greater degree upon a confidence in its superior sustaining and stimulating power. This confidence is probably not misplaced, for the tendency of a meat diet to make animals savage, as well as the greater restlessness of carnivora in general, would indicate that it was a greater nervous excitant than fish, the latter being served as fodder to cattle in Norway and formerly also upon Cape Cod, without apparent impairment of the animal's temper. Upon human beings unused to meat its effects are more noticeable, and as to the confirmed eater of animal flesh it is asserted that his pulse is quicker and his average life shorter than that of the total abstainer. While a larger consumption of fish would perhaps be to the dietetic advantage of our nervous civilization, it i more evident that land adapted to the agricultural support of human being cannot be indefinitely devoted to the raising of cattle. Such wasteful occu pation will cease whenever the multiplication of humanity demands the fullest cultivation of its available soil, and thus it may reasonably be anticipated that meat and not fish will occupy the subordinate place in the dietary of the future civilization. We know not how the problem of the sustenance of its ever-increasing millions will be faced by our posterity, but we may rest assured that while the maintenance of an adequate food supply may absorb more of human effort than at present, it will not be until that effort is relaxed that gaunt famine will stalk through a decaying world.

A. H. GOURAUD.

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